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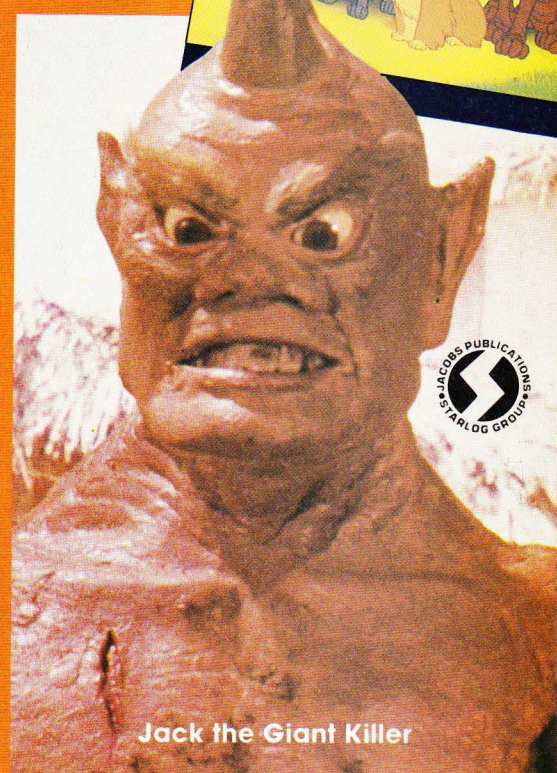
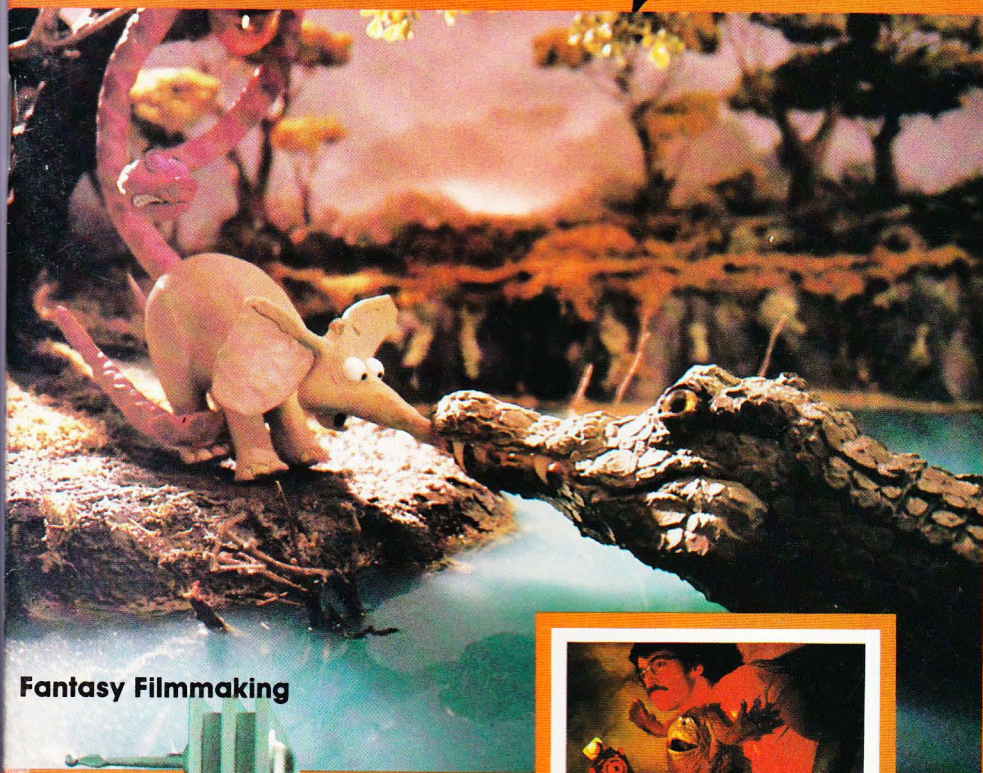
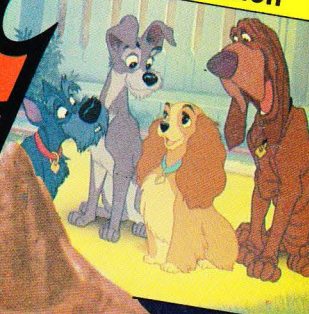
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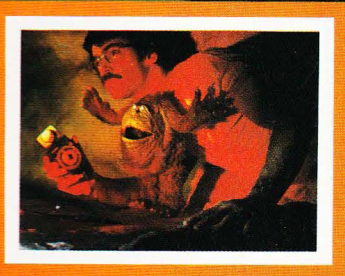
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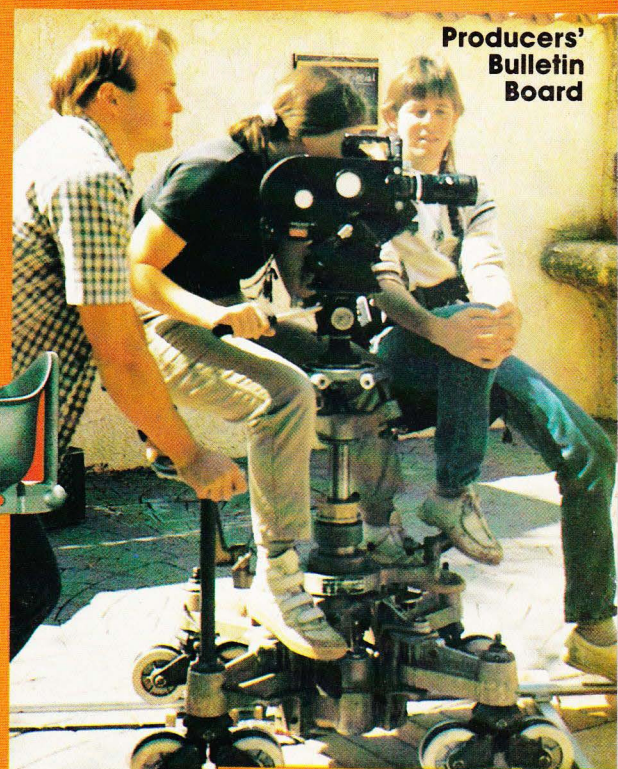
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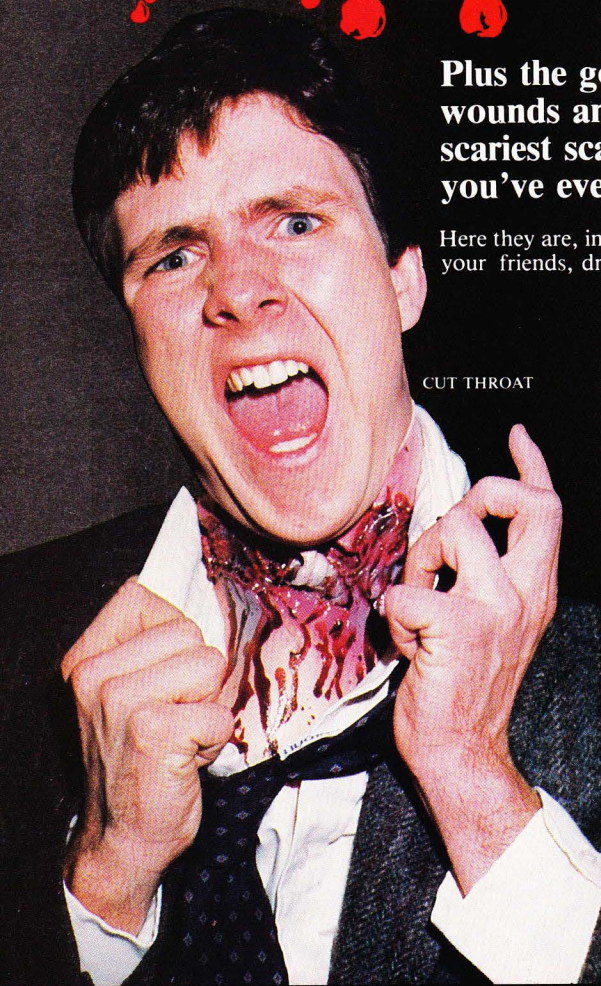
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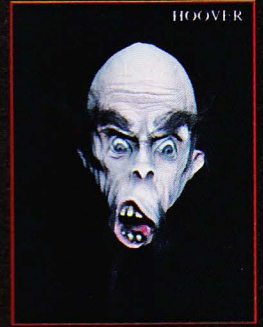
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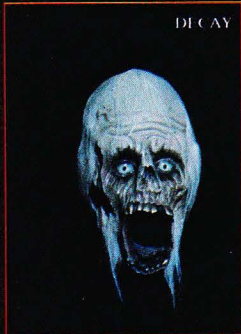
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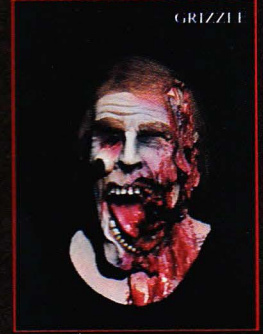
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## Editor's Bench **4** Producers' Bulletin Board **38**

## Film & Tape **6**

The best of both worlds relies on the quality of film for shooting and the ease of video for editing.  
By Michael Hadley.

## Adventures of a P.A.

## Lighting Monsters **32**

Basic techniques for making your creatures look their best.  
By John Dods.

## Stop-Motion Studio **40**

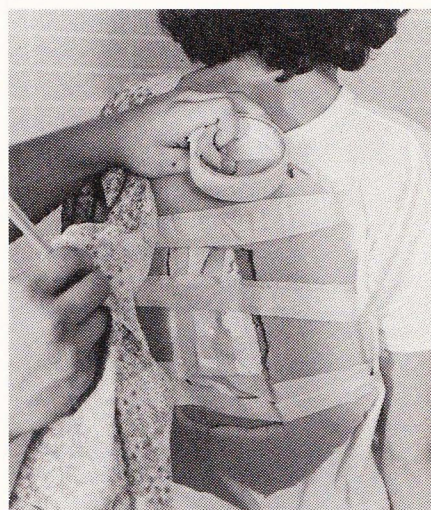
Basic techniques for smoother animation.  
By Douglas Borton.

## Lady and the Tramp

## Easy Effects **48**

Use a beam-splitter to create colorful, unusual titles.  
By Jack Imes.

## Accurate Archery



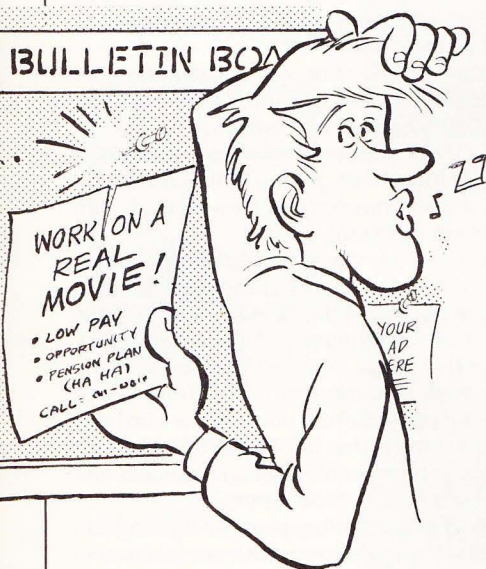
A simple special FX technique.  
By Ralph Langer. **53**

**Books** **56**  
Publishers' news and reviews.

**Festivals** **59**  
News on film festivals around the country.

**Cinemagic Marketplace** **59**  
Classified advertising and announcements.

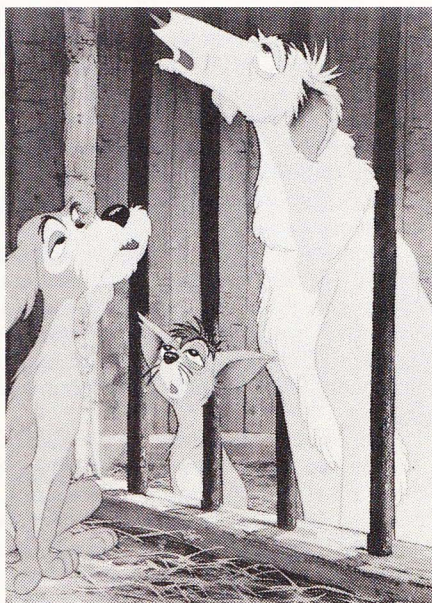
**Making Molds** **61**  
An introduction to casting with RTV silicone rubber.  
By Kenneth Walker.



A production assistant's life is anything but dull.  
By Rex A. Piano **12**

**Filmmakers' Forum** **16**  
Readers' correspondence about fantasy filmmaking.

**Jack the Giant Killer** **18**  
The behind-the-scenes history of this little known fantasy.  
By Paul Mandell.



Disney's CinemaScope animated feature returns to your local theater.  
By James Duward. **43**

**About the Cover** (clockwise from upper right): a retrospective of Disney's *Lady and the Tramp* on page 43; the scene behind-the-scenes on *Jack the Giant Killer*, page 18; news of our readers' productions, "Horror Brunch," on page 39; Ken Walker uses RTV silicone rubber to make parts for his model from *Forbidden Planet*, page 61; Ed Newman's "How the Elephant Got His Trunk," described in *Filmmakers' Forum*, page 16; John Dods sculpts with light and describes basic techniques on page 32.





Issue #34

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# BENCH

## The Electronic Horizon

**A**s this issue goes to press, publisher Kerry O'Quinn and I are still in the midst of judging this year's CINEMAGIC Short Film Search. We find that an increasing number of people are shooting on Super-8 film, but relying on video for post production editing. This marriage of film and tape is reflected in Michael Hadley's article, which opens this issue of CINEMAGIC. Producers and directors are abandoning the fussy agony of cutting and splicing the tiny film format in favor of the push button ease of electronic editing.

This film to tape technique is making an appearance in Hollywood as producers of weekly TV series applaud the speed and quality of electronic editing. Even though a show is shot on film, the final edit is a video transfer at 525 line NTSC standard. There is no final cut negative and film print.

Overseas distributors have not been pleased with this development since they must then take the NTSC video and transfer it to PAL, SECAM or whatever video format for distribution in foreign countries. Such transfers involve considerable loss of image quality as compared to a straight transfer from film.

High Definition TV may be the answer. Hollywood insiders talk about the time when programs shot on film will be transferred to HDTV at 1125 lines for final editing, and then transferred to PAL, SECAM, NTSC or whatever for distribution.

Quite often, I receive inquiries from CINEMAGIC readers who want to know how to break into the business. Many of them have found that getting that first job isn't nearly as challenging as surviving that first job, as filmmaker Rex Piano reveals with his harrowing tale: *Adventures of a Production Assistant*.

Paul Mandell has spotlighted the little seen fantasy classic *Jack the Giant Killer*, which features stop-motion animation by Jim Danforth, Dave Pal and Tom Holland. Though the film was designed to cash in on the success of Harryhausen's *7th Voyage of Sinbad*, and, in fact, copied shamelessly from Harryhausen's *Sinbad* adventure, *Jack* never made anyone rich or famous. For this article, Mandell had access to the production's daily effects log, which was maintained during the production, as well as scene trims and effects test footage. Unfortunately, current prints of the film have been butchered into a sickeningly sweet kiddie musical that would make Shirley Temple fans gag. Underneath it all, though, are some remarkable effects sequences and the fascinating behind-the-scenes story of fantasy film production.

Stop-motion fans should look over John Dod's introductory piece on lighting and Doug Borton's article which describes a few techniques to smooth out fast action and avoid strobing.

Effects artist Kenneth Walker wraps up this issue with an article on RTV rubber molds. This flexible, easy to use material is becoming commonplace in special effects shops. Walker explains the why's, what's and wherefore's involved in working with these materials for the first time. By the way, RTV means Room Temperature Vulcanizing . . . which has nothing to do with a certain character on *Star Trek*, but means that this rubber compound sets and cures at room temperature without baking.

In the wake of last issue's extensive coverage of 3-D filmmaking in Super-8 and 16mm, I would be very interested in hearing about your successes and failures. I have been a 3-D still photographer for some time. (Some of you may have even seen STARLOG's 3-D slide show, which has been booked at SF conventions around the country.) I've never had the courage (or dollars) to try my hand at 3-D filmmaking and would be interested in hearing how you did. I've met exactly three people who made their own 3-D films, and I wonder if there are any more.

—David Hutchison

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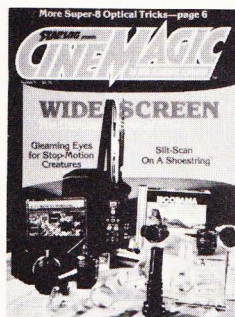
**#1—Backwinding Super-8;**  
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Construction.

**#2—Spaceship Model Making;** Blood Makeup; Smoke Generator; Light Beam Effects; Making an SF Logo.

**#3—Robot Construction;** Developing an Animation Style; Fluid Art Animation; Electronic Special Effects:

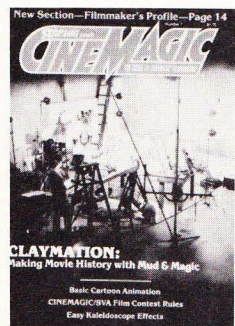
**#4—Aerial Image Optical Printer—Construction;** Wire Armatures; A-B Rolling; More Electronic Special Effects; Fog and Mist Effects.

**#5—Aerial Image Optical Printer—Usage;** Widescreen Super-8; Slit Scan Effects; Gleaming Eyes for Stop-Motion Models.



**#6—Amazing Electronic Gadgets—cheap!** Bring Your Alien to Life—Latex Masks; Basic Editing Techniques; Invisible Man Effects.

**#7—Basic Cartoon Animation;** Claymation; Kaleidoscope Effects; Profile—Damon Santostefano.



**#8—Video Tape Transfers;** Reverse Filming Effects; Lab Services; *Clash of the Titans* Preview; Profile—Paul Vitous and Mike Antonucci.

**#9—Animating Pogo;** Lithographic Film Titles; Sets on a Shoestring; Profile—The Langley Punks.

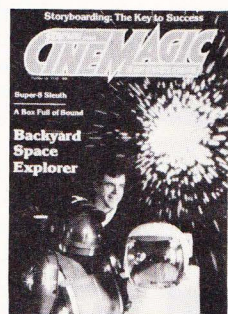
**#10—Mastering Mattes;** Zero Budget Sets; CINEMAGIC/SVA Awards Night; Building a Super Sound-track; Pen Set Ball-and-Socket Armatures; Profile—Joe Ritter.

**#11—Glass Shots;** Miniature Explosions; Figure Animation; Bloody Hair Hunks; Profile—Koch and Lohr.

**#12—Makeup Magic—Latex Appliances;** Rotoscoping; Zero Budget Ray Gun; Profile—Dean Barnes and Greg Gilger.



**#13—Slit Scan;** Creating UFO "Lightships"; Model Interiors; More Electronic Special Effects; The Saturn Machine; Profile—Bonnie Borucki.



**#14—Storyboarding;** Sound Effects Generator; Miniature Devastated Cities; Charles Jones' 16mm Space Epic. Profile—Jerry Parisi.

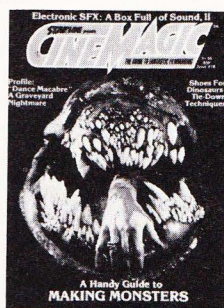
**#15—Script Writing;** Miniature Lighting Special Effects. Careers—George Lucas and John Dykstra; Super Depth in Dioramas; Profile—Ralph Miller.



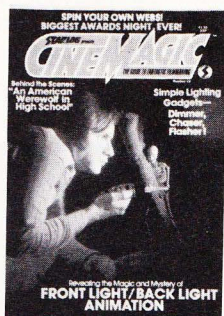
**#16—Script Writing, Part 2;** Electronic SPFX—LED Circuits; Flat Art Explosions; Careers—Frank Van der Veer; Build Your Own Camera Crane; Profile—Steve Parady and Bill Rudow.

**#17—Script Writing, Part 3;** Production Managing Low Budget; Electronic SPFX—Light "Chaser"; CINEMAGIC/SVA Contest Rules; Secrets of Graphic Gore; Profile—Chris Callaghan and Bob Griffith.

**#18—Making Monsters;** Tie-Downs for Animation Models; Accessories for Filmmakers; Electronic SPFX—Redesigned Sound Generator; Profile—Al Magliocchetti.



**#19—CINEMAGIC/SVA Awards Night;** Build Your Own Cob Web Spinner; High School Werewolf; Careers—George Melies; Electronic SPFX—Lighting Gadgets; Front Light/Back Light Animation Technique.



**#20—Articulated Full Head Masks;** Dream Screen; Precision Ball-and-Socket Armatures Parts; Electronic SPFX—Sync Strobe; Profile—Joey Ahlbum.

**#21—Custom Spaceships;** Electronic SPFX—DC Strobe; Careers—Robert Short; Foam Rubber Build-up Method; Creating a Monster; Profile—Deborah Von Moser.

**#22—Miniature Landscapes;** Electronic SPFX—Strobe Accessories; Title Spinner; Ball-and-Socket Armature Parts; Making Creature Makeup; Profile—David Casci.

**#23—Microcomputer Animation;** Make Your Own Cross-Star Filter; Animation Armatures; CINEMAGIC Back Issues Guide; Mark Sullivan's *Highrise*; On Location—*Zyzzak is King*.

**#24—Awards Night;** Scratch-Building Model Spaceships; Glowing Eyes for Creature Masks; Animation Tips; Easy Armatures; Careers—Roger Corman's Millennium Studios; EZ Effects—Make Your Own Fog Filters.

**#25—Build Your Own Camera Stabilizer;** Color Filter FX; Shooting Publicity Stills; Make Your Own Armor; Electronic SPFX—Digital Frame Counter; On Location—*Dr. Dobermind*.

**#26—Hand Puppet Monsters;** Electronic SPFX—Intervalometer; "Star Zoomer"; Three-Headed Armature; "Is Stop Motion Dead?" Melting Man FX; Animator Tony Laudati; On Location—Mendel Marks.

**#27—New Double-size format!** The Art of Stop Motion; Split-Screen FX; Rear Screen Techniques; Supply Sources; Sculpting Clay; Jimmy Picker's *Sundae in New York*; Miniature Planets; Ripple Title FX; Casting Molds; Careers—Jim Danforth, Part I; Armatures; On Location—*Raygun's Nightmare*.

**#28—Organizing a Film;** Jim Danforth on Stop-Motion; A Stop-Motion Epic; Underwater Filming; Pete Peterson; Festivals; Headless Dummies; Casting Actors; Action Stunts; Stop Motion Rock Video; *Pinocchio*; Car Crashes; Makeup FX; Beamsplitter Ray FX.

**#29—Special Cable-Control Issue!** Introduction to C-C; Building a C-C Control Handle; Building a C-C System; Careers: Jim Danforth, Part II; Marcel Delgado—Master of Miniatures; Filmmaker Karel Zemen; E-Z FX—Animation Compound; George Pal's *Wonderful World of the Brothers Grimm*; Miniature Mechanical Monsters.

**#30—A Harryhausen Gallery;** Build an Aerial Brace; Beam-Splitter Techniques; Makeup Effects; Build an Animation Gauge; Jim Danforth, Part III; Lost Sequence From *King Kong*; Sculpting Tools; Electronic Blinking Eyes; Stop-Motion Fantasy—*Frog and Toad are Friends*; More!

**#31—Parting the Red Sea in DeMille's *Ten Commandments*;** Synthetic Flesh; Eyes for Monsters; Moire Pattern FX; Rear Projection; Stop-Motion Exercises; Festivals Guide; Careers: Phil Kellison; On Location—*Strange Tangents*.



**#32—Ten Commandments—Part 2;** Imploding Head FX; Sleeping Beauty; Phil Kellison—Part 2; How Not to Make Movies; More!

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# Film and Tape: The Best of Both Worlds

*By shooting on film and transferring to video tape, you can enjoy the advantages of both mediums.*

By MICHAEL HADLEY

**W**ith the steady advance of video technology, many filmmakers say they feel threatened. They worry that too many are falling for the ease and convenience of video, while sacrificing the superior quality of the filmed image. Is the future to be a world without film stock, backwinders, and splicing tape? Not until a video image surpasses the quality of film. Until that time, why not enjoy the best of both worlds?

For example, in the film-to-tape transfer itself, it is possible to do a number of great effects: freeze frame, fade in/out, color and density correction, sound equalization, etc. Moreover, there are two channels of audio on video tape, enabling the filmmaker to create multi-layered soundtracks with ease.

One of the biggest problems with Super-8—that it inevitably gets scratched and dirty in the editing process—is eliminated when you work with tape. You never physically cut video tape: all you do is record selected segments onto another blank tape. No longer will you need a microscope to make a splice.

Clearly, there are some powerful reasons for getting into tape.

Before you start your film, make sure you do all the necessary pre-production. This includes finalizing your script and budget, rehearsing actors, scouting locations, and storyboarding.

Another very important consideration in a film-to-tape production is film speed. Video tape runs at 30 frames per second (fps), while most Super-8 cameras operate at 18 or 24 fps. If your budget doesn't allow for an expensive transfer facility, make sure you shoot at 24 fps. This insures that the transfer will be made with a high-quality projector. If you shoot at 18 fps, you take your chances with some of the budget transfer houses. Increased image and sound quality is another reason to shoot at 24 fps.

## Recording Super-8 Sound

When watching a Super-8 film, we all have to contend with the clank of the projector, a continual annoyance for anyone who doesn't have the bucks to build a projection booth in their basement. With

video, however, the playback process is almost completely silent. Poor quality sound will be more noticeable, once you transfer to video. So, now is the time to consider upgrading your Super-8 sound system.

The most simple and inexpensive way to improve sound quality is to take greater care during your shoot. If your camera has an external microphone, buy an extension cable, and keep the mic as far from the camera as possible (to avoid picking up camera noise.) You can attach your mic to an aluminum pole or broom stick—a quick way to make an entirely serviceable boom microphone. If your camera has a earphone jack, then an adapter and some extra cable, will enable you to use high-quality "closed" headphones. You'll finally be able to get a good idea of the sound you are recording.

While you're at it, do something about that camera noise! You can make your own camera "blimp" by using a towel, sweatshirt, foam rubber or any other sound-absorbent material, wrapped carefully around the body of the camera.

The extra cables, boom mic, headphones and camera blimp will give your soundman the extra flexibility he needs to greatly improve the quality of your Super-8 sound. Besides, it looks professional.

Keep in mind that you'll want to "slate" each take you shoot (this will help immensely when you are preparing your transfer.) You can use a professional clap stick, but a child's chalk board works just as well. Make sure you include the production title, scene number, take number, film roll number, director and cameraperson. Be sure to shoot at least three seconds of film before you start the action. If you want to get fancy, attach a grey scale or color strip (available at your local photography shop) to your slate board. This will come in handy when you want to color correct in the transfer.

## Film-to-Tape Transfer

When your shoot is finished and you've processed all your footage, you are ready to begin preparations for the film-to-tape transfer. The first rule to remember is that the less you screen your footage, the less

Directed and written by Mike Hadley and Tom Viall, *The Cabin*, was shot in Super-8 and transferred to video tape for post production.







Hadley achieved a satisfactory marriage of film and video by shooting with a Minolta Super-8 and editing on 3/4-inch tape with a Sony RM-440.

likely it is to get scratched or damaged before the transfer. If your projector has a tendency to eat innocent bits of film, use a hand-cranked tabletop editor instead. Carefully screen each reel and write down your "selects" (those takes which you'll most likely use). This is where your slate numbers really come in handy.

Once you decide on your selects, it's time to get out your trusty splicer and tape. Edit together a separate reel of your selects, being careful to leave two feet of extra footage on either side of the take. This way, you'll avoid cutting off your sound. Make sure your splices are strong: a broken piece of film is something you definitely want to avoid in the transfer.

Before your transfer, you must decide which tape format you're going to use: 1/2-inch (VHS) or 3/4-inch (professional). Be forewarned that if you plan to edit in 3/4-inch, the costs can be substantial—1/2-inch isn't cheap either. However, if your budget allows it, the higher quality afforded by 3/4-inch is definitely worth it. Make sure the transfer house knows which tape format you plan to use. Most houses charge a premium price for tape stock, so you might want to consider sup-

plying your own, especially if your going to need more than one cassette.

At this point, you're ready for the transfer. Remember, paying for a film-to-tape transfer is a lot like buying a car: whether you spend a lot or a little, you're still going to get where you're going. However, the better the transfer house, the greater the degree of creative flexibility. Extras like scene-to-scene color correction and sound equalization don't come cheap, but they are worth it if you want a film that meets professional standards. As with purchasing any product or service, be sure to check around and compare rates. If you're having a supervised transfer (wherein you actually sit with the technician during the transfer) make sure the facility you choose caters to the demands of the small filmmaker. And don't forget: time is money, so make sure you're totally prepared and don't waste expensive transfer time because you're not organized!

Once your transfer is done, you need to log all your footage, writing down all the pertinent information, including counter number, scene number, take number, a brief description of the scene and a quali-

ty rating (again, you can see why slating is important.) Good logs are an essential part of good editing.

### Video Editing

Finally, it's time to start editing. If you're working in 3/4-inch, chances are you will use a professional editing facility (or you can try to beg your way into a local college, TV station, or local cable channel). Check around and compare prices—most editing houses offer reduced rates at night, so try to get the best price you can. And if you have any video effects in mind, make sure the house you choose can accommodate you.

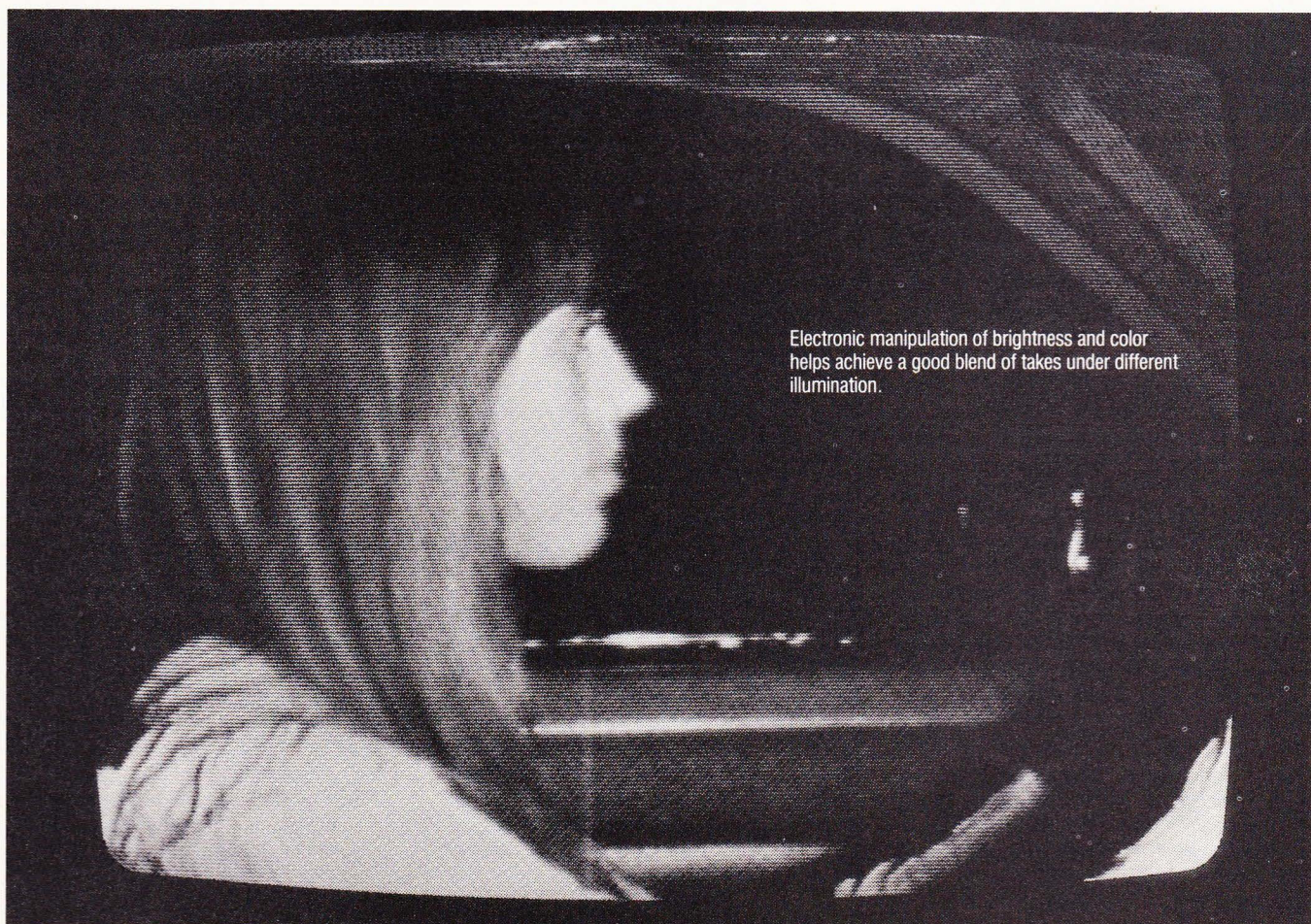
If you're editing in 1/2-inch, you will need two compatible VHS recorders, which you can usually rent for a reasonable price at your local video store. Most decks offer three record speeds: SP, LP and SLP. Use SP to get the highest quality recording.

The first thing you will notice when you start to edit is that there will probably be a "glitch" at each edit point. Welcome to the world of low-cost video editing. However, several manufacturers have recently introduced 1/2-inch editing con-





Scene-to-scene color correction is possible with video tape. *The Cabin* was shot on both Kodachrome and Ektachrome.



Electronic manipulation of brightness and color helps achieve a good blend of takes under different illumination.



Producer: \_\_\_\_\_  
Director: \_\_\_\_\_

Title: \_\_\_\_\_

Page # \_\_\_\_\_

| Reel # | Counter #'s | Scene # | Take # | Description | Evaluation |
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trollers (switchers) that deliver high-quality editing which approaches professional standards. These editing controllers are definitely affordable and may be rented from most video stores as well. With two VHS decks and a switcher, the amateur or super-low-budget filmmaker can achieve surprisingly good results. Of course, if you want high-tech effects and other extras, you can always use a professional 1/2-inch facility.

You say you want to add music to your film? No problem. All you have to do is record the song on a blank video tape and then record it onto one of the two audio channels of your master tape. Remember, you can record two audio tracks onto your source tape, and then record these onto one channel of your master tape or another source tape. By repeating this technique, called "bouncing," you can create a very rich and multi-layered soundtrack. The more times you bounce, however, the greater your audio will tend to distort, so you should try and minimize your use of this technique.

And don't forget that with video, unlike film, you can't change the length of anything you've already edited without having to re-edit everything that comes after it. Since you never actually cut tape, any changes will either leave a blank space or overlap into the next scene. For this reason, you should always make a "protection" copy of your film as you edit. That way, if you have to make any changes, at least you'll have a guide when it comes time to re-edit.

Once you're finished, make a protection copy of your master tape. Keep the master in a safe place and use the copy to send out. If your tape is lost or eaten by some machine, at least you'll still have a copy of your film.

Remember, it isn't easy to master a new technology. A lot of time and patience is required. And, unfortunately, you're going to make some mistakes along the way. But don't worry, that's the way we all

learn new things. With a little ingenuity and a lot of hard work, you'll soon be enjoying the best that both film and tape have to offer.

CM

### SUPER-8 TRANSFER FACILITIES

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Summerville, MA 02143  
(617) 666-3372

Elliot Landy  
Landyvision  
400 E. 83rd. St.  
New York, NY 10028  
(212) 734-1402

Tele-Cine Transfers  
P.O. Box 6133 W. Hill St.  
Adams, IN 47240  
(812) 663-2381  
Re: Tom Barker

Newsfilm Lab  
516 N. Larchmont Blvd.  
Hollywood, CA 90004  
(213) 462-6814

Adams & Associates  
1645 Bank St.  
Ottawa, Ontario, Canada K1V7Z  
(613) 731-6416

Windsor Total Video  
565 5th Ave.  
New York, NY 10017  
(212) 725-8080  
Re: Bert Goodman

ZTA Teleproductions  
O'Hare Office Center  
3158 River Rd.  
Des Plaines, IL 60018  
(312) 699-0881  
Re: Tony Scaletta

TNT Video Productions  
P.O. Box 1202, 420 N. Sherman  
Grand Island, NE 68803  
(308) 381-0923

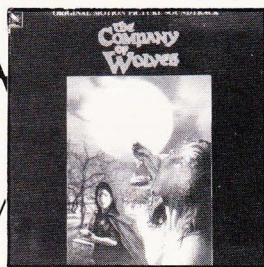
Tobin Cinema Systems  
3227 49th Ave. S. W.  
Seattle, WA 98116  
(206) 932-7280

Remember, this is only a *partial* list—be sure to check your local area for a transfer facility that best fits your goals and budget. And don't be afraid to ask questions. Most people love to talk about what they do. However, if they seem more interested in your money than your film, chances are you'll do better somewhere else.

This list was compiled with the assistance of Phil Vigeant. Phil is extremely knowledgeable about all aspects of Super-8 film productions. If you have a question, feel free to write him at: Super8 Sound, 95 Harvey Street, Cambridge, MA. 02140.

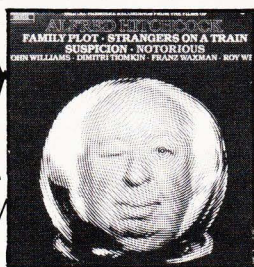


# DISCOUNT SOUND



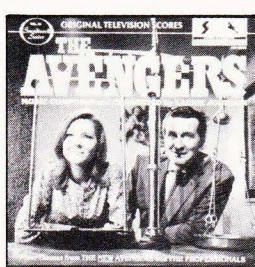
## THE COMPANY OF WOLVES

Classic, folk and original melodies by George Fenton mix in this dark, haunting orchestra-with-organ score.



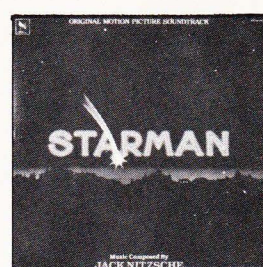
## ALFRED HITCHCOCK

New digital recording (Utah Symphony) from "Family Plot" John Williams, "Suspicion" Waxman, "Strangers On A Train" & "Notorious."



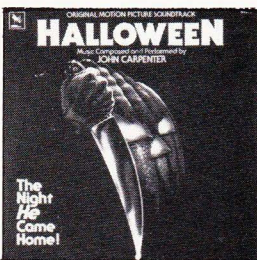
## THE AVENGERS

Themes from the series, plus THE NEW AVENGERS and THE PROFESSIONALS.



## STARMAN

Jack Nitzsche's haunting, romantic score to John Carpenter's exciting alien adventure.



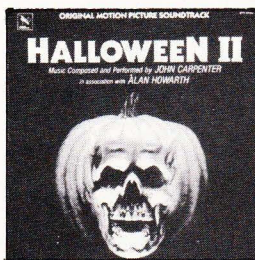
## HALLOWEEN

Chill all year 'round to music composed and performed by John Carpenter.



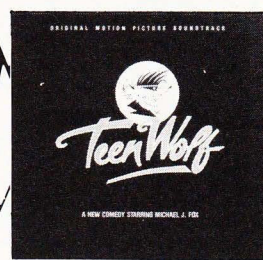
## BATTLE BEYOND THE STARS

Exciting orchestral score for humorous SF adventure. RARE!



## HALLOWEEN II

Music to scream to, by the maker of Halloween.



## TEEN WOLF

Hilarious, hit Michael J. Fox film with hot, pop music by Miles Goodman.



## STAR TREK TV—Vol. 1 & 2

Music from the classic series that started it all. Available in two separate volumes.



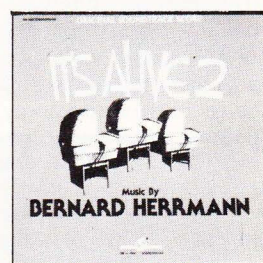
## BUCK ROGERS

The original motion picture soundtrack, composed and conducted by Stu Phillips.



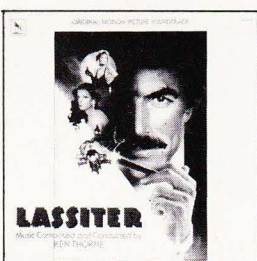
## STAR TREK II: WRATH OF KHAN

James Horner's score for the popular film. Digital.



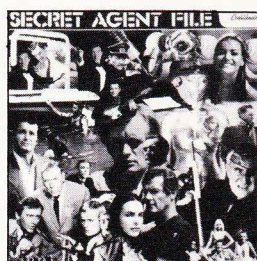
## IT'S ALIVE 2

Bernard Herrmann's 50th and last soundtrack score.



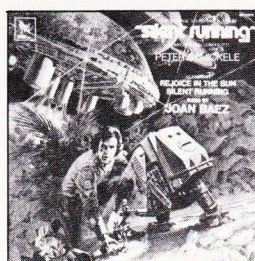
## LISSITER

Ken Thorne's driving orchestral soundtrack to Tom Selleck detective caper.



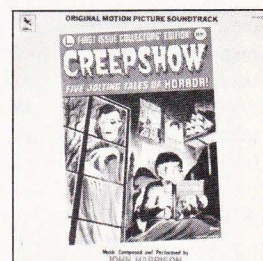
## SECRET AGENT FILE

18 cuts in all! Bond films, "Ace of Spies," "U.N.C.L.E.," "I Spy" & others.



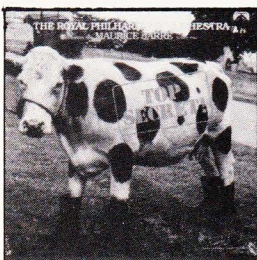
## SILENT RUNNING

Music by Peter Schickele; songs by Joan Baez. Newly remastered.



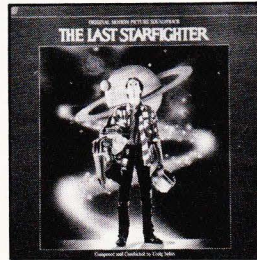
## CREEPSHOW

Soundtrack composed by John Harrison. Wild synthesizer music and effects.



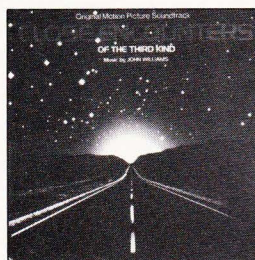
## TOP SECRET

Maurice Jarre conducts Royal Philharmonic Orchestra (digital-mix) for this lush, madcap comedy.



## THE LAST STARFIGHTER

Thrilling music by Craig Safan from computer-graphics space adventure.



## CLOSE ENCOUNTERS OF THE THIRD KIND

John Williams's soundtrack score.

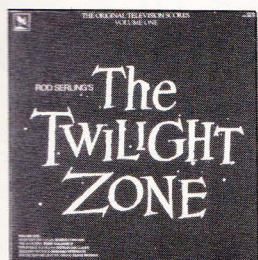


## MUSIC FROM THE 21st CENTURY

Tangerine Dream, Neil Norman and others. Available in cassette or LP.



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## THE TWILIGHT ZONE

Original soundtrack music from Rod Serling's classic TV series — released for the first time, complete with extensive notes on the episodes and composers.

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### VOLUME II:

Music by Fred Steiner, Bernard Herrmann, Jerry Goldsmith, Nathan Scott (includes Herrmann's Main & End Title themes).

### VOLUME III:

Music by Jerry Goldsmith, Bernard Herrmann, Nathan Van Cleave, Leonard Rosenman and Marius Constant's alternate Main & End Title music.

### VOLUME IV:

Music by Jerry Goldsmith, Fred Steiner, Van Cleave, plus Bernard Herrmann's alternate Main and End Title themes.

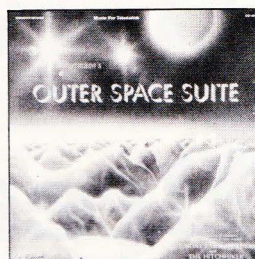
### VOLUME V:

Music by Goldsmith, Fred Steiner, Van Cleave and Jeff Alexander—plus alternate titles by Bernard Herrmann.



## ICE MAN

Lush, raw score by Bruce Smeaton to Tim Hutton adventure/drama.



## OUTER SPACE SUITE

Music for TV & radio programs by the great Bernard Herrmann!



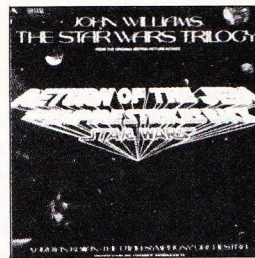
## SUPERGIRL

Composer Jerry Goldsmith and National Philharmonic Orchestra with a thrilling original soundtrack.



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The hard-driving sequel to Mad Max with music by Brian May.



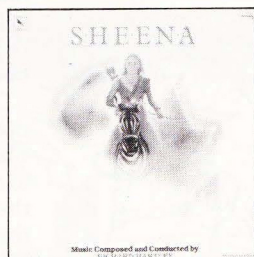
## STAR WARS TRILOGY

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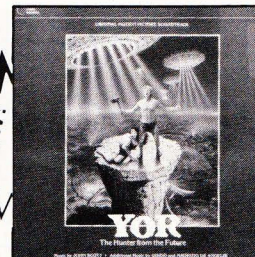
## MAD MAX

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# ADVENTURES of a PRODUCTION ASSISTANT!!

## Breaking into the Business

By REX A. PIANO

**T**he spring semester was almost over and I dreaded the thought of spending another summer at home making sandwiches in the deli I'd worked at all during high school. My eyes scanned the college "Summer Jobs Bulletin Board" (as they had the previous semester) in search of an internship or position on a feature film. I was just about to leave, when I saw it—a poster recruiting people to work on a *real* movie.

Underneath the captivating headline, in small print, was a phone number, and being the paranoid film student I was, instead of copying down the number, I ripped the entire poster down, shoved it into my pocket (making sure no one saw me, of course) and split for my dorm room. Once there, I immediately locked the door, closed the window shades, and started dialing. The phone was busy, and suddenly images of all of my classmates waiting in line to be interviewed ran through my head. I tried the number again... still busy.

I needed a resume and quickly typed one up that included every vital statistic I could think of, things that when it came right down to it, the producer cared less about. The number was still busy, so I reread the poster, just to make sure I had the right number.

I redialed, it rang and rang and rang. By the time they answered, I had my Oscar acceptance speech put down to memory. "Hello?"

The voice sounded like that of a sleazy garment salesman. I told him I was responding to their ad and asked if I could make an appointment.

"Hold on..." I then heard him yell to someone in his office, "Tell her she's got to take her shirt off if she wants the part, and that's that!" The gruff voice came back on the phone.

"You still there, kid?"

"Yes, sir."

"Listen, do you got a driver's license?"

"Yes, sir," I answered in my most energetic tone.

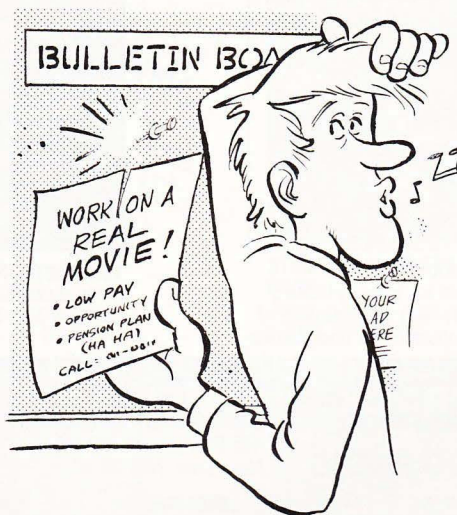
"You's gotta car?"

Again with a "Yes, sir."

"Awright. Come in." the man grumbled.

I couldn't believe it. "Great! Thanks!"

I hung up the phone, jumped out of my chair, threw on a sportscoat and ran out the door. It wasn't until I reached the elevator that I realized I had no address for the film company, nor did I have an appointment. I ran back to my room, tore open the door and grabbed the phone, dialing. The number was busy.



### The Interview

Their office was one within another within another, actually three rooms—grey walls with built-in red formica desks that looked like tongues hanging out of sheetrock mouths. A bearded dwarf was running from room to room, screaming about excessive phone bills and how this was not part of the agreement. There was an attractive woman, bra-less, in her 30's sitting behind one of the tongue-desks, speaking on a phone. When she saw me, she waved, and motioned with her finger that she'd be right off. The dwarf came ranting by again, disappearing into another office.

"Don't pay any attention to him, he's a creep!" She then asked me who I was, and why was I there.

After I told her all of the necessary information, she told me to sit down and wait. I saw a *Variety* on the table and started reading it, trying to convey an air of professionalism. I didn't really read any of it, just flipped through the pages and nodded my head accordingly, I felt her eyes on me and looked up. Was she flirting with me? She was smiling and then shook her head.

"You know, that *Variety* is two years old."

I dropped it immediately, as if someone had just thrown me a briquette of white-hot coal.

"I thought the news seemed a little outdated," I quipped. Boy, what a jerk I was. She smiled politely and told me to go into another office to meet the Producer and the Director. I thanked her and went into the meeting that would forever change my life.

Both men wore shorts and polo shirts, and each sat behind desks that were directly opposite one another. There was one chair—straight backed and very uncomfortable-looking—between them. I sat down, and was soon bombarded from both sides with question, after question; my head turning like a judge's at a ping pong match. Could I drive? What was my experience? Where did I live? Was I willing to work for very little money? (This was later translated into NO money for four months work). Then came the silence; both men studying me.

"Do you have a car? Can we use it on the shoot?"

To make a long story short, I got the job and ultimately beat the hell out of my car.

The picture was a low budget horror film that was actually shot and released under the same title, something that very rarely happens in the low-budget world; it was the movie *Mother's Day*.

During my first two weeks of pre-production. I think I learned more than anything two years of college had taught me, and I made friends that have lasted through the years. I got jobs on the film for two other college friends—because they too had cars—and this began a summer I



will never forget. Production was scheduled for four weeks, and the P.A.'s were expected to survive on three hours of sleep a night. All of us lasted the entire shoot, and each had his own nervous breakdown. Mine happened last, and what set it off was my biting into a sandwich during lunch and eating half of a live bee. I lost it! I grabbed the machete I wore on my belt and went out and hacked apart a delapidated shed. Relieved of the tensions of pre-production and production, I resumed work at a normal pace.

I was the Assistant Art Director and Propman, along with being a P.A.—that meant that I got to spoon blood into actors' faces, and wipe fake bear manure off their feet, *very* rewarding work. But, hey! I was in the film business and making a movie!

### The Snake and the Toilet

We were shooting in a deserted old house last occupied by an old man who died there, and whose family just picked up his body and boarded the place shut. Needless to say, there was no toilet, as the house was over two hundred years old. All of the actors were complaining about the lack of bathroom facilities, so the Producer ordered the next best thing: a Port-

O-John. It was unknowingly placed in the middle of a snake infested field, and every time the actors tried to go to the bathroom, they were attacked by snakes, so they started to complain again; the problems a Producer has to deal with!

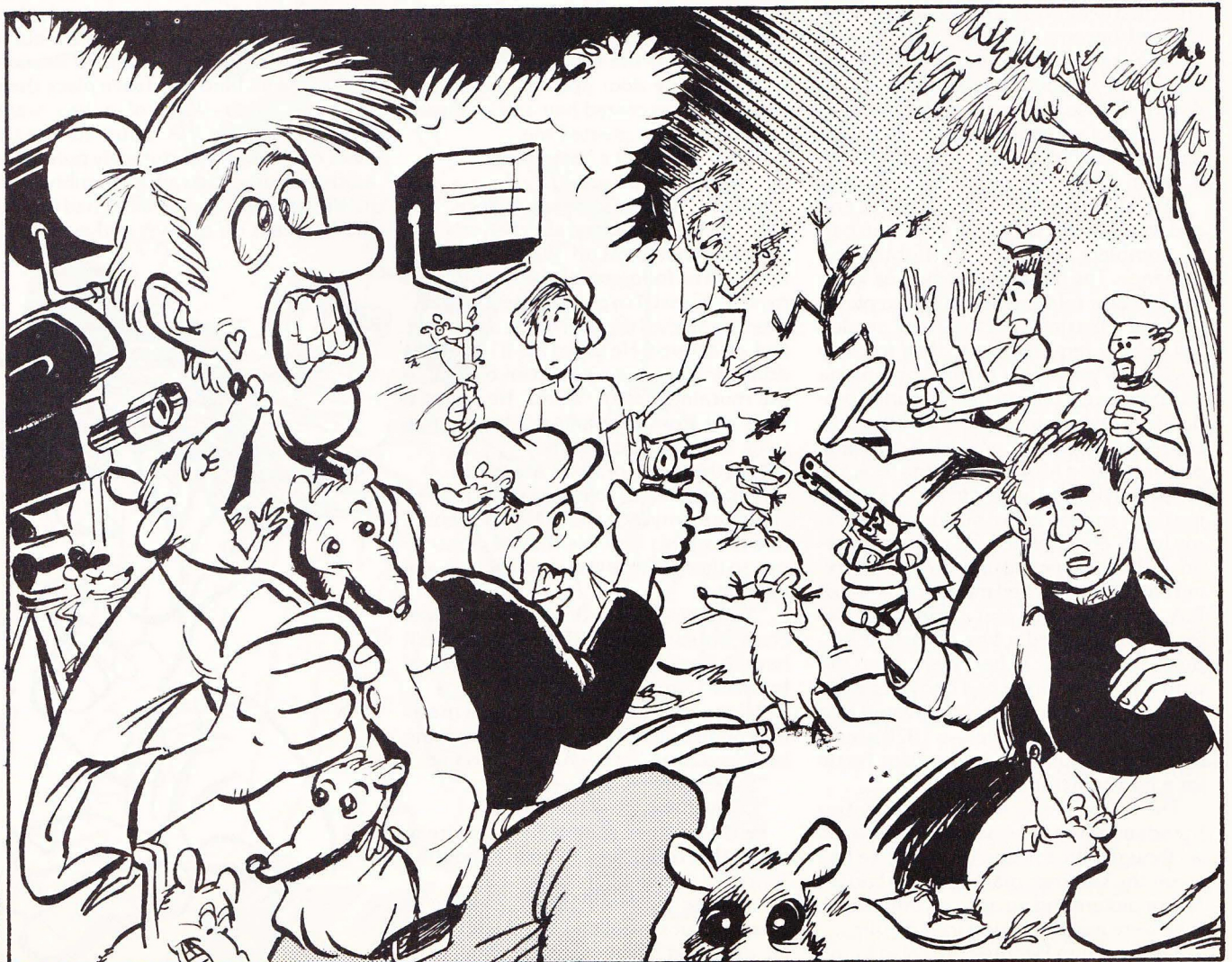
The Producer had the solution, it would add to the production value of the film, the most important aspect of low-budget filmmaking, and would shut the actors up, and make them stop threatening to quit: I was supposed to go out and hunt down all of the snakes with my machete, and we'd put a dead one in front of the camera. Brilliant!

Being the devoted P.A. I was, I set off blade in hand ready to whack any viper I came across. It only took one incident for me to give up snake hunting. I saw a long black snake basking in the sun near the fiberglass outhouse. I stealthily approached it, machete ready. It didn't move, so I thought it was already dead. Unfortunately, it was just sleeping. I threw a branch at it, and it didn't move. I still didn't trust it, however, and luckily tested it once more. This time with a fat log. Well, when that log smacked that snake, the damn thing reeled up in the air, standing about six feet tall, and snapped at me like the cracking of a whip. I ran like a son of

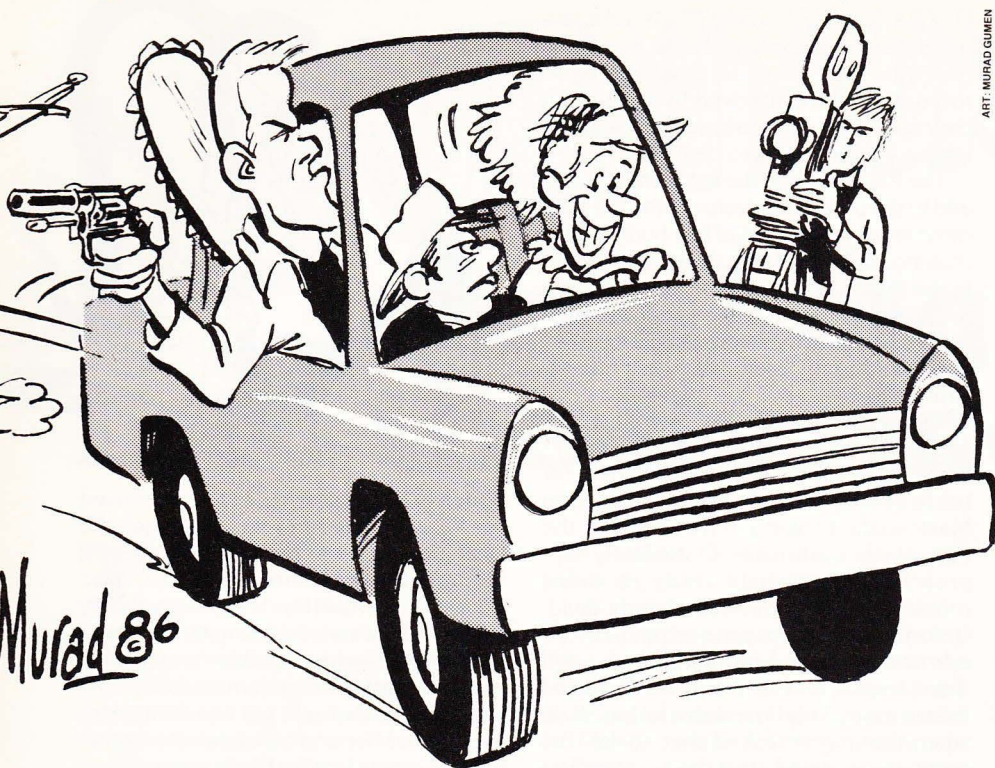


a bitch out of that field. No one ever used the Port-O-John, and we never got the snake for the shot.

Another problem we faced was "Mother's" availability. She was an elderly woman who we would bus in and then put up in one of the lovely cabins we were living in. She hated her accommodations, let alone the movie itself, but was doing it for the "art" of her craft; besides she hadn't made a movie in over thirty years. When it came time to do the travelling shots of her driving the family car, she wasn't







ART: MURAD GÜMEN

learned about grip equipment, lighting, and about making a movie without a script.

One night we were shooting in Central Park. It was the height of the rat infestation and they were everywhere—crawling all over the food van and trying to break in. Our security force—the Guardian Angels—warned us all to tuck our pants into our boots because the rats jumped at you, then crawled up your legs. That night we were shooting a huge gun fight, and we had to be especially careful when firing the weapons because the New York Film Commission and the Police Department had not been notified. Well, we must have fired a hundred shots and *no* police came by, but the rats started running everywhere, on the equipment, into lights; it was just like the black plague.

### No Blood, Just Sparks

At the end of the film, there is another shoot out, this time at a party. We needed another person to get shot, and I volunteered. This was the first feature for the special effects man, and he gave us quite a deal—kind of a “Big-Mac” approach to special effects: \$10.00 a squib. Well, you get what you pay for. Squibs are supposed to be detonated with a 10-volt battery. The FX man didn’t have one, so the next best thing was a wall outlet, 110 volts. He had run out of rubbers, and sent a P.A. out to buy a case of them. FX men fill the condoms up with blood and then place them over the squib—kind of a tiny water balloon. Well, the P.A. returned with the case, but he had unfortunately purchased lubricated ones instead of dry rubbers; so for the next hour and a half he had to wash the lubricant off of each and every con-

available—the next best thing was a P.A. I donned her dress, a wig and her hat and crouched behind the steering wheel of the car and became “Mother.” If you look closely at all of the driving shots, you can see my first on-screen appearance, in drag. I was also the body stand-in, and was the victim of numerous assaults, beatings, and tortures throughout the film, whether it was in a sleeping-bag, or off camera.

Like all film shoots, this one had to end and we capped it off with a wild wrap party complete with booze, fights, and romance. The highlight for me was when the Director told me he wanted to play a trick on a particular actress and needed my help. It required both of us to carry buckets of water over to this woman (she had been a real pain-in-the-ass during production) and pouring it on her. We proceeded as scheduled, unlike the shooting, only he poured his water first and took off. She was livid, and turned to see me standing there smiling with a bucket of water in my hand, and grabbed the nearest weapon—which happened to be a cast iron frying pan, then smacked me with it. A fellow P.A. witnessed this and came to my defense. He grabbed a box of instant oatmeal and threw it at her. Well, when the oatmeal hit her drenched body, it began to swell, and she was soon covered in a layer of growing oatmeal—a 1970’s tar & feathering—quite an appropriate finale for a horror picture.

The fall semester started and my two friends and I returned as celebrities, or so we thought. We told our class that we had spent the summer making a low-budget horror picture and no one was impressed; they were just interested in “art” films.

The next film I worked on, I also found

out about through the bulletin board. I called and made an appointment to stop by. The office was in the Director’s loft in the east village. I showed up, rang the bell and waited for the elevator. After a few moments, the door opened and a madman with long crazed hair and an insane look on his face greeted me.

“Yo, man. What’s happening!”

“Ninth floor, please.”

The ride up was complete silence. This guy kept looking at me, and then smiling. I couldn’t wait to get off. We arrived at the floor and he followed me out. I thought to myself, “Great, I’m going to be mugged.” Then, he opened the door to the apartment and we entered. He asked me if I wanted a drink, and since it was eleven o’clock in the morning, I said, “Sure.” He pulled a flask out from his pants pocket, took a swig, then handed it to me.

“I’m the Director. Who are you?”

Amazed, I tried to conceal the look of surprise on my face and told him I wanted to work on his film. He moved closer to me, so that his nose was practically touching mine.

“You know, man, this is going to get crazy. I mean, I might flip out, and you’ll have to direct the picture. Are you ready for that? Can you handle that?”

All the while, he kept looking at me as if through a viewfinder, his head weaving back and forth between sips of cognac.

“Sure.”

“Okay, here. Read the script.”

He then handed me a twenty page treatment, that turned out to be the shooting script.

I worked on that film while going to class. I’d cut school and shoot with them all day, and all night—it was great! I





dom in the box. That done, the FX man then placed a small piece of metal over the area of skin on each actor that was to be shot (usually it's a piece of leather, but he didn't have any) and taped down the squib, running the wires out through the clothing. He then covered the tiny explosive with the blood-filled rubber.

When it came time to shoot the first per-

son—me—everyone was tense and excited. The Director had never worked with squibs, we thought there was going to be blood everywhere, and I thought, "Great! I'm going to be in a movie!"

No one realized that I was now essentially prepared to be electrocuted; a piece of metal on my skin connected to a wire that was about to be plugged into the wall.

The Director yelled "QUIET! Roll camera! Okay, Rex, look scared. This woman's got a gun. She's going to kill you!"

BOOM!

The FX guy hit the switch. An Explosion! Then sparks shot out and no blood. I was thrown to the floor and upon landing, started shaking like a piece of frying bacon. I just remember trembling and not being able to stop. The sparks kept flying, and sensing something was wrong, the Director grabbed me—now he too was getting electrocuted. "Yah! Unplug him! Unplug him!"

The Director let go of me and finally the FX guy unplugged the switch box. I was still shaking when I stood up, and hyperventilating, but I lived through it. For the next six months, I had re-occurring muscle spasms where the squib had been placed, but the worst thing was that they cut me out of the film, because there was no blood, just sparks.

After I finished that film, which I worked on for no money, I decided it was time I started to get paid for my experience and I gradually got work. Had it not been for those two films, however, I wouldn't have learned about making *real* movies, and get work that paid.

### Sell Shoes

Out of all of the films and commercials I have worked on, I remember those first films most, because I wanted more than anything to learn and I was willing to do whatever I had to do just to be involved with the movies. Now that I am somewhat involved with the business, and am hiring people, I look for the same energy and eagerness that possessed me when I started out, and some people have it, but many don't. I can't remember the number of P.A.'s that complained to me about working long hours and not getting overtime pay. These are not the kind of people I hire because they're more concerned with what they get out of it financially, then what they put into it creatively.

Making movies isn't just a job. If you want to make a lot of money at an introductory level, then go to work in a bank. The people who work in film and eventually make a lot of money are there because they busted their ass for no pay on some sleazy low budget film. You've got to pay your dues.

Filmmakers are in a unique situation, they have the ability to do something that can entertain people, educate people and make good money while doing it. However, the *most* important reason for working in the film world is because it's fun! In what other profession is the main intention of those involved to entertain people? None.

As soon as filmmaking becomes just another job, then you should get out of it and sell shoes, because there are a lot of eager, talented people right in line behind you still trying to break into the business.

ART: MURAD GUMEN





# Filmmakers' FORUM

A regular department devoted to readers' comments about filmmaking, their problems and solutions.



Ed Newmann's *How the Elephant Got his Trunk* in production.

## California Cinemagician

... I am a freshman college student majoring in film and would like to know if there are any fellow filmmakers out here in California who would like to get together and try to win a Cinemagic Film Search contest or two. Even if you don't live in the immediate area you can call or write to just exchange ideas or to arrange a place to meet and try some ideas out. I want to spend all of Summer '87 filmmaking, but please write at any time. I am knowledgeable in filmmaking, SFX, and makeup, and feel that with a few serious people we could blow some minds.

Leon Laderach  
5226 Pacific Ave.  
Long Beach, CA 90805  
(213) 422-4020

## PA Filmmaker

... Thank you for another issue of the number one magazine in film production. I discovered CINEMAGIC a few years ago and now (thanks to your back issue service and my local book store) have every issue. Please don't stop publishing this outstanding

magazine.

I only have one gripe. I feel that Cinemagic is no longer aimed at the low budget filmmaker. From looking at your latest articles, I hope you can see what I mean. Don't get me wrong, I enjoy reading about effects on such films as *The Ten Commandments* and *The Adventures of Mark Twain*, but please don't let these kind of features become the major attraction of the publication. Just how many readers can afford to part the Red Sea? I suggest you keep the mini-budget filmmaker in mind.

I am looking to contact filmmakers in my area so we can collaborate on projects in the future, if not the present. Everybody knows that filmmakers can use all the help available, so don't hesitate to contact me.

Dan Kellaway  
1816 Third Ave.  
Arnold, PA 15068

## 3-D Advice

... On page 19 of CINEMAGIC #33, the sample 16mm clip, which is captioned as being shot with the Bolex 3-D attachment, was actually shot with the Elgeet attachment. Both attachments

position the left and right eye views side by side, but the Elgeet has the "normal" orientation with the right image on the right and the left image on the left so that it is a "freeviewable" strip. With the Bolex, it would be left eye view on the right and vice versa. Also, with the Bolex lens there tends to be a lot of asymmetrical vignetting, which Bolex cleans up with a special screen that has a 3-inch black mask all the way around it. Bolex made no attempt at getting a clean window on film, but the Elgeet has a sharply defined image border.

You've probably also noted that the British Pound symbol was missing in the ad for the Spondon anaglyphic 3-D attachment. Personally, I don't care for the deep green filter that the Spondon uses with the red filter to create 3-D. For my taste, normal flesh tones (Caucasian) do not reproduce well with this filter. The deep green forces one eye to perceive a face as almost black and the red filter sees a face as white. This sets up a condition known as retinal rivalry in which the image appears to flicker from light to dark. This can be very tiring to view. Users should substitute the deep green

filter for a lighter cyan filter to alleviate the problem. In principle, the design of the system is fine, but I would try substituting different filters.

David Starkman

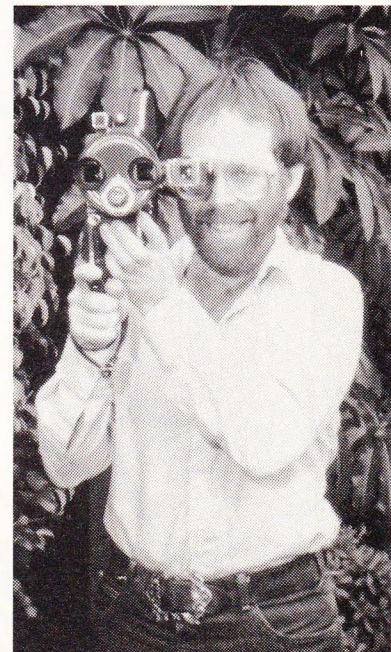
David Starkman is one of the owners of Reel 3-D Enterprises, which was listed in the last issue as one source for 3-D supplies. Starkman wishes to inform out readers that the company has recently moved. Requests for catalogs (\$1.00) should be addressed to Reel 3-D Enterprises, P.O. Box 2368, Culver City, CA 90231.

## 3-D Movie Kit

... I read with great interest your article in issue #33 about how I could make my own 3-D movies. I was so interested that I actually went out and did just that. But, when I send \$15 to John Brumage for the Polaroid glasses and projection material the letter was sent back stamped 'NO SUCH ADDRESS.'

Bartley Busse  
Box 36  
Meidpath, Sask  
Canada S0N 1S0

Mr. Brumage advises us that the post office has changed his box address. All mail was supposed to have been forwarded to the new address, but, apparently, it was not in your case. You can write to the new address at: John Brumage, LeaVision, C.S. 3030, Lindenhurst, NY 11757. He will





also accept inquiries by telephone (no collect calls, please) at (516) 957-4393.

## Stop-Motion Kipling

... Rudyard Kipling's story, *How the Elephant Got His Trunk*, is currently being adapted to film by Chicago-area animators Ed Newmann and Monica Kendall of Calabash Productions. The project is being produced by Paul Buchbinder of Encyclopedia Britannica.

The film is being shot in stop-motion animation and features a variety of African animals constructed out of clay and latex rubber. The film will also employ replacement animation, a process in which a series of figures in sequential poses are used to give a fluid appearance to walking and running sequences. Voices for the animals have been supplied by several Chicago-area voice talents.

Ed Newmann, who is directing and animating on this project, adapted Kipling's story to screenplay form. Ed began working in L.A. in 1974 and has animated at such studios as Bill Melendez, Hanna-Barbera, Ralph Bakshi, and the Walt Disney Studios. Monica Kendall has been animating in Chicago for the past three years. In 1984, her film, *Somnolent Blue*, won the

Student Academy Award for best short animated film, as well as honors in the International Competition in Varna, Bulgaria, and the Datsun/Focus Film Festival.

Helping Newmann and Kendall with the construction of the animals and landscapes are local animator/artists Nancy Guzik, Susan Kubinski, and Chris Weakley.

*How the Elephant Got His Trunk* will be approximately 10 minutes in length and will be made available on film and videotape for sales and rentals through Encyclopedia Britannica.

**Ed Newmann**  
Calabash Productions, Inc.  
3 East Ontario #22  
Chicago, IL 60611  
(312) 944-2295

## Yonkers Film Club

... I am 15 years old and very interested in filmmaking. Right now I am trying to form a film company in the Yonkers area called Primitive Films. I am presently writing a sequel to *Return of the Jedi* called *Star Wars: The Further Adventures* and a spy film called *If Looks Could Kill*. If anyone in the Yonkers area would like to join Primitive Films to act, write, do makeup, storyboards, special effects, etc., please try to call or write me. The types of films we

will be doing deal with science fiction, adventure, comedy, fantasy, horror or a combination of these. Filmmaking can be a lonely business, so it is good to work with other people who share the same interest. Please try to get in touch with me.

**Michael Battista**  
Primitive Films Productions  
790 Tuckahoe Rd.  
Yonkers, NY 10710  
(914) 961-8839

## Tennessee FX Artist

... I would like to correspond with Independent Filmmakers. They can see of my work as a scenic artist in the up coming film *From a Whisper to a Scream*. I am also an extra in the movie. I am interested in working with special effects makeup, helping design and build sets, and acting.

**Teddy Whittenbarger**  
102 Greenleaf St.  
Chatt., TN 37415

## Squibless in Santa Rosa

... I thoroughly enjoyed the winter edition of CINEMAGIC, it was the first time I had ever bought one and had a chance to study it in depth. I have been interested in filmmaking all my life, and have had so much trouble trying to get supplier

addresses and so forth, and in that one issue (#32) I got more information than I ever could have wanted. Plus all of the great interviews with makeup artists and actors, you have yourselves another lifelong reader.

There is one thing I have not been able to find though, maybe you or other readers could help: how do I go about getting those little bullet wound simulators called "squibs?" If anybody has, or can get the address of squib suppliers, please send it to the address below.

**B. D. Bricker**  
2298 Guerneville Rd.  
Santa Rosa, CA 95401

## A Direct Line

... Readers who have access to CompuServe can contact CINEMAGIC'S Editor David Hutchison directly through Easyplex E-Mail. His User I.D. is 71036,1477. He can also be reached through M.C.I. Mail #136-7254. 

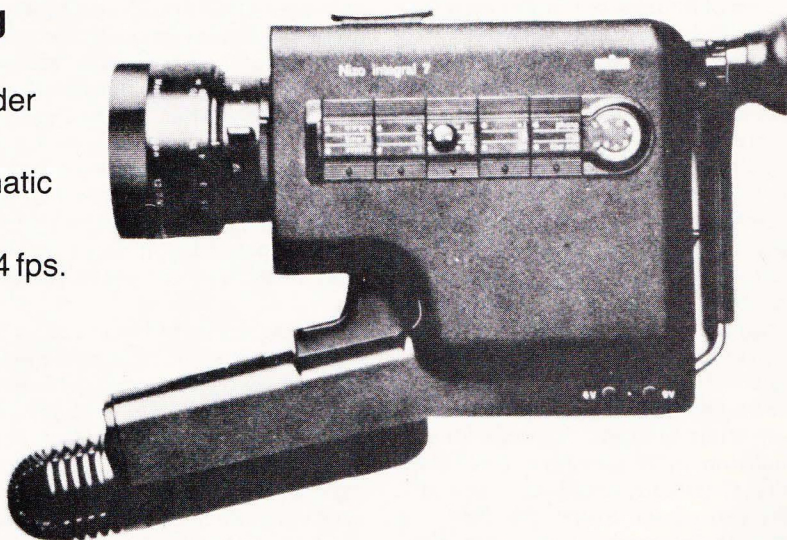
Address all correspondence to:  
CINEMAGIC—Filmmakers' Forum, c/o Starlog Press, Inc., 475 Park Ave. So., New York, NY 10016.

Due to the enormous volume of mail received, the editor regrets individual replies are impossible.

# NIZO INTEGRAL 7

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Louis MacManus' early concept of the sea monster.

Imitation, they say, is the sincerest form of flattery, but more often than not, the imitator botches the job. The very act of trying to siphon the power of an original work into a copy-cat production courts disaster from the start, especially when a group of people attempt to copy the binding creative force responsible for the original's success. We've seen it happen time and again—witness the rash of remakes that pale (and pall) when compared to the seminal works of the original artists, be it *Imitation of Life* or *King Kong* or *Invaders From Mars*.

Consider the cash-in mentality of *Son of Kong*, which not only lacked the grandeur of the parent film but also the creative input of Willis O'Brien. Warner's idea of capitalizing on the success of *One Million Years B.C.* (already a remake) resulted in *When Dinosaurs Ruled the Earth*, a technically interesting but inferior film. Even *I Was a Teenage Werewolf*, critically reprehensible in its day, evoked a genuine creepiness blatantly lacking in producer Herman Cohen's attempt to "rework" it as *Blood of Dracula*. And so it goes.

Chances are you haven't seen *Jack the Giant Killer*. Begun in 1960 and released in 1962, it was producer Edward Small's attempt to cash in on the unprecedented

## Jack the Giant Killer

*The bizarre story behind a forgotten fantasy film.*

success of *The 7th Voyage of Sinbad*. He went so far as to get the same director, the same hero, the same villain, and hired others to imitate the Dynamation technique devised by Ray Harryhausen. Problem was, he couldn't get Ray Harryhausen. "Dynamation" was still a secret in Hollywood—Ray's meticulous way of pre-planning the effects for *Sinbad* and shepherding the entire production was not understood by Small.

As it turned out, *Jack the Giant Killer* was a technical nightmare. It took 10 months of grueling work by two effects facilities to come up with what Harryhausen had polished off in three or four months. The model work was grossly inferior to that of *Sinbad* and the picture went way over budget. Many dollars were spent on a matting technique that failed. It lacked that cohesive, singular vision of a technical creator.

The end result of all this intensive effort was something garish and grotesque. Ironically, the more interesting cel-animated effects produced by a team of freelance Disney artists were not even planned, and evolved as a "save-all" to disguise a major screwup in the live action photography. Small's lofty expectations for the film were ultimately extinguished, to the point where he never wanted to hear the word "animation" again. Further, the picture fell prey to a court battle that was never resolved. If you have seen *Jack the Giant Killer* in recent years, you've been lucky.

The bizarre saga behind *Jack* had its roots in the mid-fifties, at a time when Ray Harryhausen was trying to get *Sinbad* rolling in Hollywood. Prior to his partnership with Charles Schneer, Harryhausen prepared an outline and several key drawings illustrating the dramatic verve of what was to become *The 7th Voyage*. One producer he tried to interest was Edward Small.

"I remember taking my outline and drawings to Small's office," Ray revealed, "but I couldn't even get past Small's secretary! I never met the man and no one ever returned my phone calls. It was a discouraging experience, to say the least, I finally filed it, like several other ideas, under 'story possibilities' and got on with other things."

It's also possible that Ray had presented Schneer with *Sinbad* around that time, but their track record together had not been established. *Sinbad* would be an exotic project—Schneer was more interested in making inexpensive black-and-white pictures for Columbia. Uniting his ability to attract exhibitors with Harryhausen's technical virtuosity, they devised a system whereby superior-looking science fiction films were brought in for very little money, reaping decent returns at the box office.

Three pictures and "20 million miles" later, *The 7th Voyage of Sinbad* became a reality using backgrounds shot in Spain, blue screen stages in London, and glorious Technicolor. It premiered in New York during the frigid winter of 1958 in the middle of a newspaper strike, prompting Columbia to concoct an unforgettable blitz of TV advertising. The picture took off like a rocket and was hailed by *Variety* as the sleeper of the year. Reportedly, Schneer and Harryhausen brought it in for half a million dollars.

Edward Small had egg on his face when this happened. He undoubtedly remembered the name "Ray Harryhausen" and the barrage of unanswered phone calls several years back. Obviously, he had missed the boat.

The thing is, Small was no schlock producer and had considerable clout in Hollywood. In 1957, he financed Billy Wilder's *Witness for the Prosecution*, a remarkable courtroom drama with a picture-stealing performance by Charles Laughton as a wily defense counsel and a cunning portrayal by Marlene Dietrich. Critical acclaim notwithstanding, the film didn't sweep the box office as Small had hoped. But *Sinbad* did. Swashbucklers were nothing new to Small, having made *The Man in the Iron Mask* and *The Corsican Brothers* in the forties. A special effects children's film was a bit out of his ballpark, but the very thought of having passed on Harryhausen must have irked him.

Determined to cash in on a missed opportunity, Edward Small contacted Nathan "Jerry" Juran, a seasoned art director-turned-live-action-director with an Oscar to his credit (*How Green Was My Valley*, 1941) whom Charles Schneer had hired to megaphone *The 7th Voyage*. Small teamed Juran with screenwriter Or-



ville Hampton and asked him to adapt a monster-laden fairy tale which could easily house Harryhausen's techniques. Naturally Juran would direct.

They decided on "Jack the Giant Killer" from the Welsh and early English legends, replete with ogres, an evil sorcerer, and a sword-wielding hero, which Hampton wrote with deliberate nods to Ray's *Sinbad*. Juran proceeded on the screenplay with Hampton and Small saw nothing but dollar signs. *Jack* would be more opulent, more sensational than *The 7th Voyage of Sinbad* and would reap even healthier profits. So he thought.

Small needed a director of photography, one who had experience in trick work. Jerry Juran recommended David S. Horsley, the former head of Universal's special effects department, who had been freelancing ever since he left the studio after *This Island Earth*.

Said Horsley, "Small called me into a meeting in the fall of 1959 and I agreed to do the picture for him. At the time, it was with the understanding that all optical and miniature work for *Jack the Giant Killer* would be done at Paramount under John Fulton's supervision. Small had that deal all set up; that was his intention. And so on that basis, we had a handshake agreement that I would do the show and report to go on salary as soon as the script was finalized.

"About a month later, Small called me and told me that they were going to postpone the making of the picture for six

months. And that he would like to renew the agreement if I was available, or if I could become available. So, I agreed and that's the way it went."

On January 1, 1960, Horsley got a call from C.B. Wood, who had been in charge of the construction of Disneyland and was the key developer of Freedomland Amusement Park in the Bronx, New York. He asked Horsley to design a group of cameras that could take 360-degree pictures, eight of them shooting 45 degrees apart with anamorphic lenses. The idea was to fly it around the world beneath a plane or a helicopter and secure background plates which would be used at Freedomland.

Small agreed to give Horsley a six-month release. With the \$37,500 camera part machined, he flew it over key cities in South America. Around the world was out, though—he could never complete that assignment in time for the *Jack the Giant Killer* shoot in July.

"In the meantime," said Horsley, "Small's production manager was bugging my wife every other night on the phone, trying to psyche her into scaring me to come back from South America! I had to waste a lot of money on long distance calls to let them know on certain terms that I would not be there until my six months was up and not a day before." Apparently, Horsley was having the time of his life in Brazil, and returning to California for Small's picture did not seem very appealing.



An elaborate set was built on a stage at Goldwyn Studios for *Jack*.

In July, Horsley discovered that Edward Small had concluded an agreement with Howard Anderson, an independent trick fellow, to do the effects for *Jack the Giant Killer*. John Fulton was no longer in it—the work would not be done on the Paramount lot. The new deal was no surprise to anyone, as Anderson had been supply-

The crew shoots a scene with Sigurd's small boat in July 1960. The barge is in the background.







Phil Kellison mans second camera on a barge off Catalina Island.

ing and servicing Small with matte shots throughout the forties. Anderson, in turn, subcontracted the services of Project Unlimited, whose sole responsibility was to provide the miniatures, props, and animation puppets.

It's interesting to speculate on how Paramount would have handled it. John Fulton was gung ho on blue screen composites and, assuming that he was no more privy to the particulars of Dynamation than anyone else in Hollywood, probably would have ordered the stop-motion to be shot against blue. *Jack the Giant*

*Killer* might have looked very different from *The 7th Voyage of Sinbad* technically. Even Project Unlimited courted the notion of matting the puppets onto live action backgrounds and did so for several shots.

### The Production

Small decided to stage the outdoor scenes on Catalina Island and the Isthmus of Avalon off the coast of California. He rented an army barge 150 feet long and docked it off Catalina. It housed the ship sets, the generators, and the entire production crew for an operation that went through most of July 1960 and ended during the first week in August.

The actual photography at Catalina took 15 days. A week was spent shooting interiors built on two stages at the Goldwyn Studio, and another week at Universal for the castle exteriors using standing sets on the back lot.

For his camera operator, Stan Horsley chose Phil Kellison, who had been freelancing as an optical technician for Jack Rabin and Howard Anderson. (See CINE-MAGIC issues 31 and 32 for an examination of Kellison's career) They first met at the Fred Ziv Studio, which in the fifties was the hotbed for low budget television shows. Ziv had started a series called *World of Giants*, the brain-child of science-fiction producer William Alland, which starred Marshall Thompson as an eight-inch FBI man carried around in briefcase. Rabin was contracted to do the special effects for 13 episodes at the rate of one a week. But

the effects got out of hand—Ziv wanted more than Rabin was prepared to do.

In short order, Alland brought in Stan Horsley to take charge of the operation. Kellison was intrigued (and often perplexed) by Horsley, who usually spoke in terms of logarithms and gamma ratios. Nonetheless, a friendship knit. When *Jack the Giant Killer* evolved, Kellison couldn't have been happier shooting second camera on the live action in the crisp, clean air of Catalina. His background in stop-motion effects would also be a great asset when it came time to put the magic on the screen. It was still a Howard Anderson show, and Kellison was very much part of that company. The effects stage at Cascade Pictures would not be in full swing for another year, and the Pillsbury Doughboy would not be popping out of the oven until 1963.

All the while, Edward Small had his own anxieties on the back burner. He suspected that *Jack* would cost far more than the estimated budget. But his main concern was what he didn't have, and clearly what *The 7th Voyage of Sinbad* did have—a singular guiding force which would prevent the picture from veering off course. Ray Harryhausen was peculiar to Hollywood filmmaking, and Small knew it. He learned from Jerry Juran how well-oiled the *Sinbad* operation was, how Harryhausen and Schneer had managed

The miniature of Pendragon's castle is filmed on location at Catalina. This same miniature was used for the destruction sequence.





to maximize their assets from start to finish. Ray was a genius, technically and financially. Now, *Jack the Giant Killer* would be divided between two effects camps with no technical visionary cracking the whip. He thought of Stan Horsley, who promptly declined.

"I didn't get involved in the trick phase for this reason," Horsley winced. "I knew that Howard Anderson had underbid Fulton's department at Paramount by quite a large sum of money. This was Anderson's way of working, and it was only a question of time before he would run out of dough and he would have to renegotiate. This happened four or five times, and they wound up spending a lot more than the price Fulton had given them in the first place. Had John taken the picture, it probably would have come in on that figure, and no more than that.

"I was particularly sensitive to cost overruns, because I had gotten in trouble at Universal on several occasions. With one picture, *City Beneath the Sea* (1953), the script was about 45 pages when we came up with a flash budget. When the final shooting script came in, we had something like 115 pages describing this earthquake under the sea, and long sequences shot dry for wet with foreground mattes. It more than doubled the amount of work, yet the front office wanted to hold us to the flash figure. Which, of course, was utterly impossible! So I had to go ahead with the production manager's approval and spend whatever it took to get the picture finished. Afterward, it looked very bad on the books and the overrun was charged to my department. I wasn't about to get into that kind of position a second time. So I backed away from the effects end of *Jack the Giant Killer* as much as I could."

When the production closed, Horsley went off payroll and Howard Anderson took over. Retained by Anderson was Horsley's right hand man, Wes Thompson, who later became head of production at Universal. "I left Wes with Howard to coordinate things. Wes had all the notes, all the protractor readings, and everything he would need to scale the live action plates to the puppet work at Project Unlimited."

### Cameras Roll, Heads Roll

On a balmy day in mid-July, cast and crew assembled on the barge for the first day of shooting. There was Kerwin Mathews, fresh from *Sinbad* and *Gulliver*, who by now was an expert at lancing creatures he could not see. Torin Thatcher was on board as the evil sorcerer Pendragon, a steal from the Sokurah role penned by Harryhausen and screenwriter Kenneth Kolb. A new girl, Judi Meredith (Frank Sinatra's girlfriend at that time), was cast as Princess Elaine. (Apparently, Edward Small could not get Kathryn Crosby.) Even the young genie in *Sinbad* played by Richard Eyer had a counterpart in *Jack*.



David S. Horsley (seated in plane with camera) prepares to film an aerial sequence with Paul Mantz, pilot. Mechanical engineer Wes Thompson is standing beside the aircraft.

The location photography was anything but smooth sailing. Small, Juran and Horsley rarely saw eye to eye. On one particular day, Horsley was so irked by Juran, he almost threw him off a 20-foot parallel looming over the barge!

Technically, one of the problems stemmed from Edward Small's plan to release *Jack the Giant Killer* to theaters and television. With that in mind, he instructed Stan Horsley to light the scenes so the film would be as tolerable to television as it would be to the movie screen.

According to Phil Kellison, "Stan's theory was that the contrast ratio of the photography had to be compressed within a very low scale. The tolerance to TV was not as good as it is now. This caused him to 'fill' his photography so strongly, it took on a very flat look. Stan was just full of theories."

Horsley threw an absolute fit at Pendragon's costume. "It had black and white vertical stripes with pearls in them. Stan felt the black & white pattern was so far out of the range of contrast that the camera could pull for television, he felt obligated to use all the fill light he could! It was very lackluster; he was lighting for what he thought were the limits of television. On top of that, he was *framing* for Television. TV cutoff was far worse then than it is now, so he was composing for a little frame in a big picture. The little frame was what he was concentrating on! So, some of those compositions are most peculiar. These were his *own* restrictions."

Horsley lit the rest of the stage material the same way, destroying much of the atmosphere that director Juran was seeking. "Pendragon's castle was supposed to be a grim, dark, foreboding place. Stan would not allow the contrast level to go down to make this castle look grim and foreboding. It looked more like a nicely-lit dance hall with all these creatures hang-

ing around. It lost all the mood.

"There was so little known about films for television at that time," Kellison points out. "It wasn't entirely Stan's fault. Thing is, I'm not sure if it could have even been shown on television *when* he shot it—he may have been thinking of the future. There was no low-contrast stock. What Stan was doing was the things you *shouldn't* do, which was compromising for 'film for theater' and 'film for television.' As it turned out, he didn't do either medium any good."

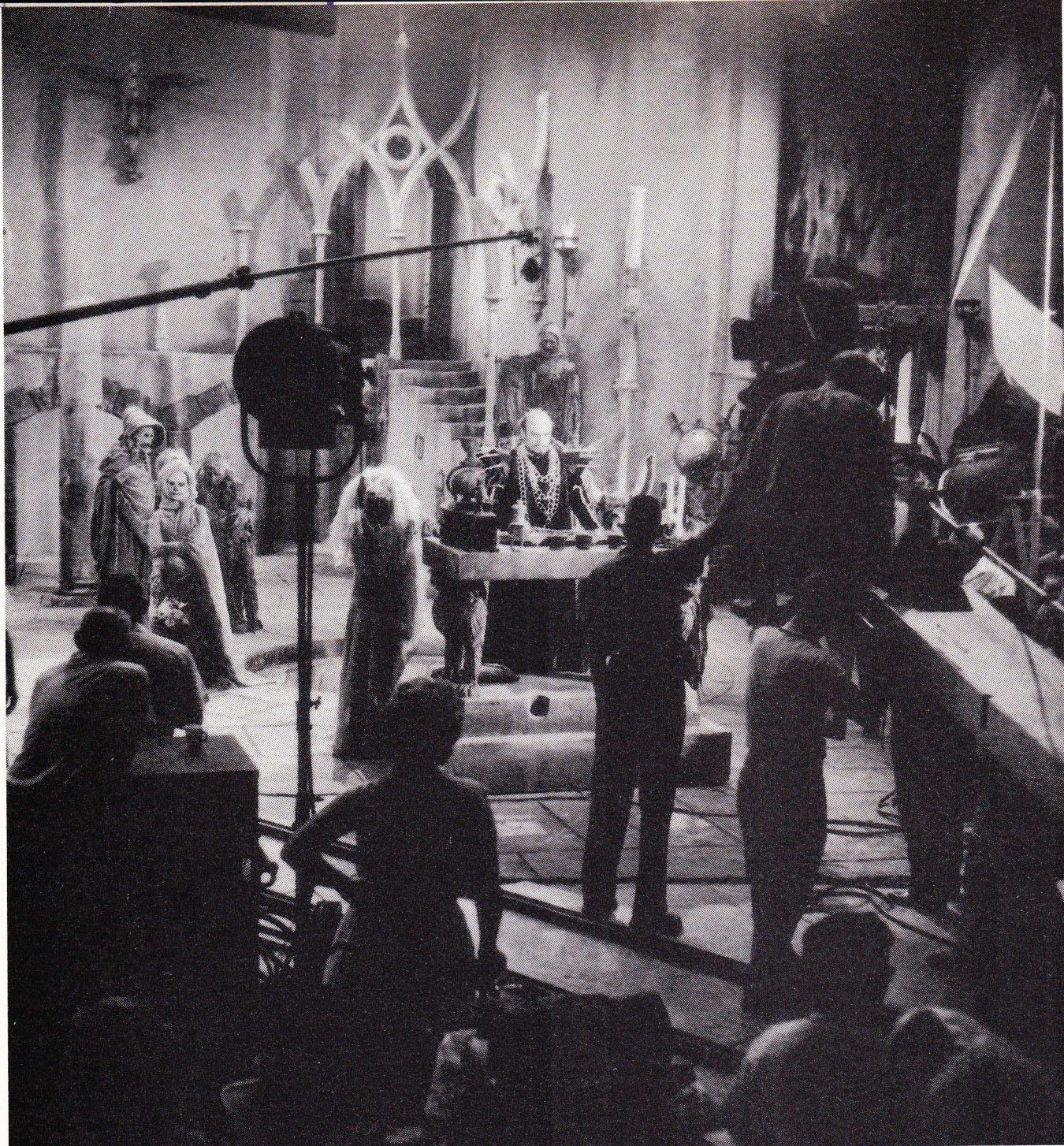
### Ghosts on the Loose

There were other catastrophes. Originally, there were ghosts permeating the picture. Each had a specific name, dressed in tattered costumes and grotesque masks built by Charles Gemora, the famous Hollywood prop man. There was a wind witch, a water witch, and each had an important part in the film. There was even a *prologue* introducing the witches, telling the audience how and why they

A new actress, Judi Meredith, (Frank Sinatra's girlfriend at the time) was cast as Princess Elaine. Lady Constantine was played by Anna Lee.







Torin Thatcher as the evil sorcerer Pendragon rehearses on a stage at Goldwyn Studios.

were present. The intention was to double-expose them into the live action. Phil Kellison recalled the grim scenario.

"After the location work had been shot, we prepared the Goldwyn stage for the first 'ghost' scene. Of course, the actors' scenes were locked off. On a separate take, the ghosts would be shot against black in a matching situation. There could not be any camera movement; we didn't have motion control in those days. You blackened the set with velvet so the ghosts could go around the furniture, and the ghosts would be optically double exposed.

"They were ready to make the first setup when Jerry Juran got into a *screaming* fit with Stan Horsley! Juran wouldn't

allow the camera to be locked off. He wanted a *moving* camera. Of course, this immediately ruins the whole effect of the ghosts being double-exposed. Jerry wouldn't give in, and Eddie Small apparently backed Jerry. Stan threw his hands up in the air! 'OK, moving camera. The ghosts will have to be in there with 'em.' So there were all these characters roaming around, lit to full intensity, in burlap costumes with masks and visible eyeholes."

A lot of footage was shot. Apparently Edward Small wasn't watching the dailies. "When he finally saw the scenes of these 'ghosts' running around the set with the regular actors, he went through the ceiling! There was *hell* to pay! But the money

had already been spent. Small wouldn't go back and reshoot those scenes and double in the ghosts as planned. So the decision was, 'OK, we'll *cut out* as many of the ghost scenes as we can.'

"Unfortunately, the ghosts were next to the principal actors half the time. And if you watch *Jack the Giant Killer* carefully, you'll see this strange creature behind Kerwin Mathews, but only for *that cut*. Then, he would be gone! They removed everything they could get rid of, but they had to salvage the scenes that were pertinent to the story."

The upshot of this chaos was the complete deletion of the prologue, leaving only the ghosts that menace the ship. Problem was, they didn't look like ghosts but



more like refugees from a bad masquerade ball. Edward Small had run out of Maalox and implored Howard Anderson to do something about this optically. So a decision was made to camouflage the costumes with cartoon-animated enhancements.

A new unit was formed at Anderson's composed of reputable Disney artists, adding over \$50,000 to the budget. Gary Crandall was in charge of opticals. Every ghost image was roto-scoped, effects-animated, solarized, and printed in colors which were out of register. Hundreds of man hours were spent creating overlays of hand-animated sparkles. *Anything* to disguise them which, with typical Hollywood irony, turned out to be the most interesting effects in the whole picture.

Boyd Vaughn spearheaded this unit along with his brother Lloyd, who eventually got screen credit. Others included Disney animators Dan MacManus, and Nancy Van Raenseller. Jim Danforth remembered her well.

"Nancy was an ex-Disney roto girl who went into the effects business. She worked at our facility. She used to do mattes directly on film, painting right on celluloid whenever a traveling matte was imperfect or something had to be covered up. For example, there were wires holding up the skeletons on Pendragon's drawbridge. Nancy would draw hairline mattes and they would burn in a piece of vacant background.

"Phil Kellison did the effect of Pendragon's cloak appearing and disappearing with roto mattes. Then, Nancy was set up with Phil's Bell & Howell camera and did all the witches's mattes. She also did the roto material for the Vaughns and Dan MacManus, as when the captain gets zapped by the witches and he's on fire as he falls. She would make a precise outline of the actor which would go to the effects animators, and they would draw flames into it. She was tremendous."

If the ghosts weren't enough, a major mishap occurred during the filming of Pendragon's castle. One can only appreciate Ray Harryhausen's work even more, as every effect in his films had been pre-planned and built precisely to Ray's specifications, be it large-scale miniature work or actual stop-motion. If something *did* go wrong, it was probably attributable to the uncontrollable laws of physics. Not so on *Jack the Giant Killer*—with no single-*vision* creator the technical instability that cropped up was inevitable.

Pendragon's castle was built as a hanging miniature in the prop shop at Project Unlimited. Transported to Catalina Island, it was mounted near the camera, aligned with the natural terrain, and photographed in bright sunlight along with actors performing in the distance. Moreover, the camera could pan around it. The technique was old and ingenious, eliminating the need for composite work. Nothing looks better than the real thing.

But a situation in the script was grossly overlooked.

"The castle was brought back from location and put in storage," Kellison explains. "It was quite big for a miniature, about ten feet high. Then, somebody realized that the end of the script had a passage that read: 'Jack looks back and watches Pendragon's castle collapse into the sea.' Nobody had made any provisions for that whatsoever!

"At that point, Louis MacManus, who was one of the partners at Anderson, said 'Don't worry. We'll just give the impression of it. We'll dump some fragments of the castle upside down in a tank.'

"Edward Small wouldn't buy that idea at all! What we had to do was take the castle, which was built solid, and prepare it as a breakaway. It was somewhat cut up and put back together. They did make a couple of large-scale arches, which were made specifically to collapse. Then, Augie Lohman, a mechanical effects expert, was hired to make them disintegrate. We matted it against blue or black, so we could put a real sky behind it. Small's warning, however, was that the castle was to disintegrate—not to explode.

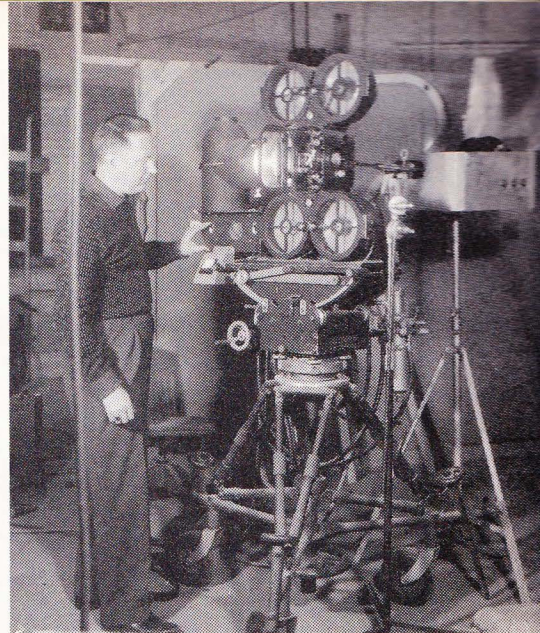
"First time around, Augie put Primacord in it. It didn't disintegrate; it exploded. Now, this was a one-of-a-kind castle! So, they had to rebuild the entire thing again. And the second time around, it *still* looked like an explosion. But we were stuck with it. Ironically, had the castle been *planned* as a breakaway, we would have avoided the agony of hauling a ten-foot solid structure to Catalina Island."

### Gearing Up For Stop-Motion

Project Unlimited was owned and operated by Gene Warren, Tim Baar and Wah Chang, with a group of model makers, animators, and a matte painter under their roof. George Pal had used their services for a number of pictures (Warren and Chang were alumni of Pal's *Puppetoons* and Project had recently completed the Oscar-winning effects for *The Time Machine*). The facility on Sunset Boulevard near Vermont Avenue was small and cramped but self-contained and competently run. Dwarfed by the major studios, Project Unlimited operated on lean budgets and came up with trick work that, for its day, was quite good. Howard Anderson had no qualms about subcontracting them for *Jack the Giant Killer*.

Originally, though, it was Anderson's intention to form his *own* unit to do the stop-motion effects. When Edward Small approached him to do *Jack*, Anderson happened to be on the RKO lot and discovered the original *King Kong* puppets which had been lying in RKO's prop room, rotting rubber and all. The Kong armatures had in fact been stripped and redressed for *Son of Kong* in 1934. No one had touched them since.

Considering this find a real *coup*, Howard Anderson, his production



Kellison examines one of the Cunningham process projectors, which were built for *Mighty Joe Young*. They were revamped for color by Wes Thompson.

designer Louis MacManus, and Phil Kellison decided to rebuild the puppets. MacManus designed new characters to fit the armatures, which is one reason why the monsters in *Jack the Giant Killer* resembled splayed giants.

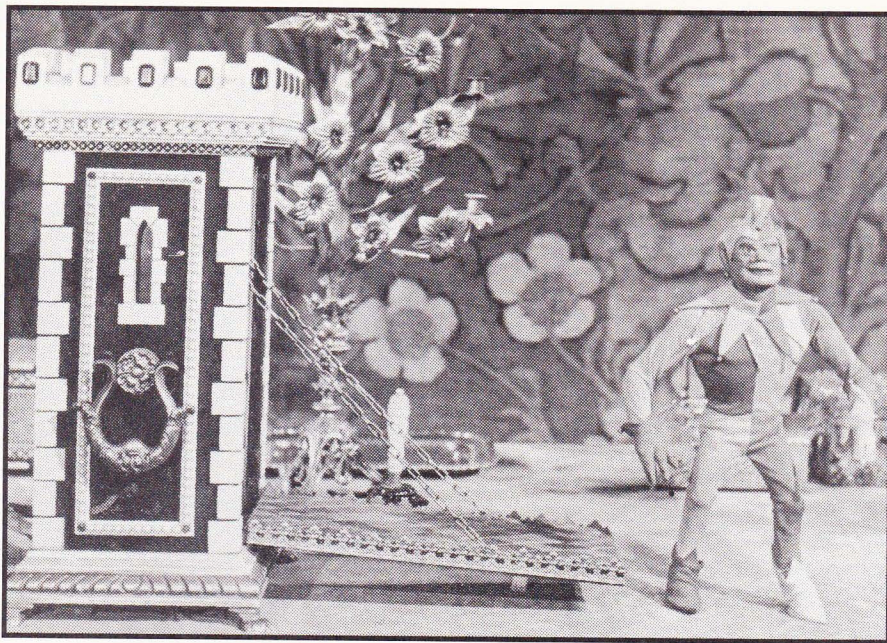
Kellison stripped the two Kong puppets clean, discarding the morbid exteriors. To tamper with them might have seemed unholy, but to Kellison, who had worked with Willis O'Brien, they were kindred spirits. But much to his chagrin, he found that the armatures were too antique. The machine work had been crude and most of the parts were worn.

After that, Anderson's thinking changed. He had been myopic. He realized it would require quite a setup to start from scratch to do all the work that was planned. His stock in trade had always been photographic effects, not machine work, and the prospect of combing Hollywood for competent animators seemed unrealistic and time-consuming.

The idea *then* was to farm out the puppet construction and stop-motion chores to Project Unlimited. The company was already set up to accomplish this. Phil Kellison, who had been "drafted" by Gene Warren on several films (including *Dinosaur* in which he animated the climactic steam shovel sequence with Dave Pal), was appointed by Anderson to take charge of the stop-motion photography.

Since the Kong armatures were unusable, Gene Warren decided that his crew would build new ones. Curiously, at this point, they *could* have made more interesting monsters, liberated of the cumbersome anatomy that MacManus had been locked into. But instead, they stuck to the original designs. The problem was getting Edward Small to OK *anything*. The prototypes had already been approved. As far as Small was concerned, that was the end of that. The situation would soon change.





The court jester (Cormoran in disguise) emerges from his music box. This sequence was filmed on October 5, 1960.

Marcel Delgado worked on the new armatures at Project with his brother Victor. "The strange thing about the Delgados and the company," Kellison remarked, "was that Victor was in charge of the shop. Marcel worked for Victor. I didn't even know Marcel was important! I had always thought that it was Victor that had done the *Kong* armatures. But I realized that he was too young. Marcel's English was sluggish and he was very retiring. Gene hired Vic to run the shop, who pushed Marcel back and shoved him under the rug. Victor was very upfront."

### Sculptural Anomalies

Also at Project Unlimited from time to time was an ambitious, teenaged artist named Jim Danforth. He had apprenticed at Art Clokey Films for a year doing TV commercials and an animated rabbit for *The Dinah Shore Show*, then shuttled over to Project for a few weeks to work on *The Time Machine*. He assisted in a general way, changing slides for the background projector and setting up dolly shots. After that, Danforth went back to Clokey's for six months to co-animate *Davey & Goliath*. An offer brought him back to Project Unlimited. At age 20, he became a full-time Project employee.

His first job there was stop-framing a dragon for AIP's *Goliath & The Dragon*. "It was originally intended as a very elaborate film," Danforth recalled, "a sort of Hercules-styled Greek mythology adventure. But the plans went awry and they ended up purchasing an Italian strongman film and inserting the dragon sequence into it. So, we at Project built the dragon and animated about half a dozen scenes that they just cut into it. A strange sort of mish-mash, but AIP liked it."

For *Master of the World*, Danforth built tiny human figures for long shots of an air-

borne ship. He then proceeded to work on *Jack the Giant Killer*.

"They were looking for someone to build the models. I had in fact submitted estimates on sculpting the puppets and doing the hair and taxidermy work. This was during the time Anderson was planning to rework the *King Kong* puppets. I was to do the sculpture in this hypothetical situation. Rubber casts were to be made by Don Post Studios, and I would fabricate them back over the armatures, paint them, put in eyes, and so forth.

"I went through quite a lot of work. I sculpted a prototype of the two-headed giant and did a lot of technical drawings and breakdowns. But they were never submitted. Before I ever got to turn them in, they asked me for a figure and I quoted them something like \$3,000 to do all the puppets. They never commented on it and I just didn't get the job. When Project Unlimited got the entire bid to build the puppets and miniatures, I wound up working on it anyway."

As it turned out, Wah Chang sculpted the creatures for *Jack the Giant Killer* based on Louis MacManus' sketches. The bizarre menagerie included Cormoran (a poor man's Cyclops), a two-headed giant called Galligantua, a sea monster, and a harpy. Though their physiognomies looked conspicuously Oriental, reminiscent of classical Chinese festival masks, Chang did not design them—MacManus had drawn them that way. Marcel Delgado had originally sculpted the two-headed giant using his build-up method, but for reasons that were suspected to have been political, the job was given to Chang. "The person who revamped it thought he could improve it," Delgado lamented, "but in my estimation, it was ruined."

One can only sympathize with Delgado. The puppets were garish monstrosities.

The skins lacked detail and the musculature looked like parodies of Ray Harryhausen's work. Chang may have been a Puppetoon master, but in *Jack*, something went awry. For Jim Danforth who eventually had to animate them, it was a nightmare.

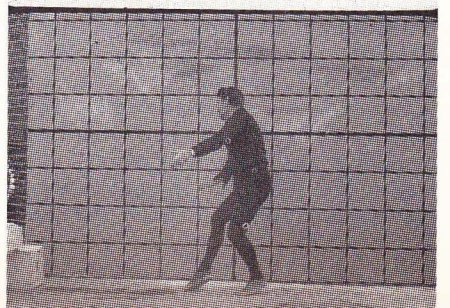
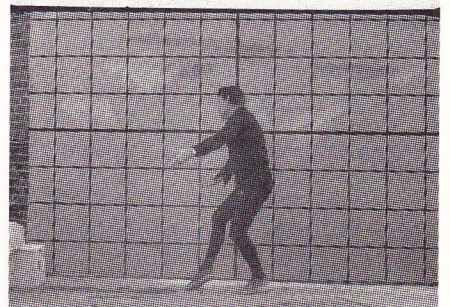
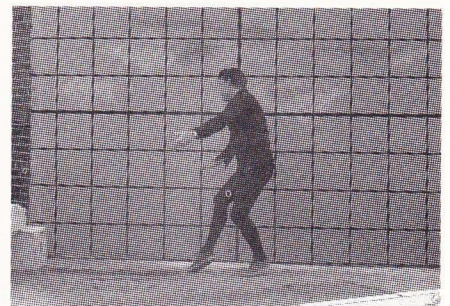
"The puppets were horrendous. And it's quite difficult to animate figures when you don't find them aesthetically pleasing. Especially when you have to look at them with intense concentration, day after day. I did build some of the secondary characters, though. I built a small chimpanzee model which I don't think actually appeared in the film, and a dog, which was in the film. Also some miniature people. I don't think any of these were used, either. I had *nothing* to do with those monsters!"

The sea monster may have been the worst of the bunch. With six tentacles, a sneering grin, and a receding forehead, it was impossible to wrench any terror out of it. Three versions were done. The first was used during the initial animation test but looked bad in the dailies and was promptly rejected.

The second was sculpted by Danforth in Plastiline but never went past that stage. The third, done by Wah Chang, was used in the film. Apparently, Small threw his hands in the air and let it ride.

### Process vs. Infrared

Another major find at RKO were the stop-motion projectors that had been built by Harry Cunningham for *Mighty Joe Young*. Miniature rear projection was an





on-going consideration for *Jack the Giant Killer* and the prospect of obtaining these machines was exciting. Project Unlimited did not have exceptional process projectors in-house. On *Dinosaurs*, they used an old Acme projector and did a number of miniature process shots which were very poor. Rear projection was also used in *Master of the World*, but those facilities were brought in by an independent process man, Bill Hansard. Therefore, as part of the deal, Anderson bought three of the Cunningham projectors and had them re-assembled on Stage Two at Project Unlimited.

The machines were magnificent, built to last forever. Each looked very much like a big breadbox. They were driven by ½ horsepower motors with four rocker arms and a telescopic shaft. The motor could be set in the stop-motion mode or a real-time mode. A foot pedal allowed frames to be clicked off from the camera's vantage point.

Because they were built for black & white film, they had to be reworked for color. Wes Thompson accomplished this by improving the mercury relay switches so they would not wear out. 3200 K bulbs replaced the old ones. He also installed water jackets on the projectors. There was an input and output—cold water came in, removed a considerable amount of heat, and exited down a drain.

Thompson's overhaul was superb. He later sold one machine to Ray Harryhausen who has been using it ever since.

Yet, early in the game, Anderson and

Kellison were considering an infrared travelling matte process for compositing the puppet animation with the background plates. Unlike Harryhausen's Dynamation process, the models would be matted into the scene.

"Cascade Pictures had an exclusive patent on it," Kellison explained. "It was an excellent system. It used a Technicolor camera which was antique by that time, but it made beautiful mattes. It had the best lack of matte lines of any system because you were using two films in the same camera—one to record the animation and another to record the matte—and they were ultra-perfect. One of the problems with ordinary matting is that you're inadvertently shrinking or expanding the matte as you're developing. The infrared light focused .007 of an inch further back on regular color film and compensated for that shrinkage automatically.

"Still, it was unpredictable for the work in *Jack the Giant Killer*. The lenses on the Technicolor camera were very old and difficult to shoot miniatures with. And the camera was a bear of a box. But we did our first test using that technique."

Don Sahlin and Tom Holland animated that first test, of the two-headed giant and the sea monster in combat. Project Unlimited had elected to put one animator on each of the characters. The sea beast had many tentacles, and it was soon discovered that two people couldn't do two creatures that intertwined. One animator would move in to strike, the other would move away, and the models

would never make contact.

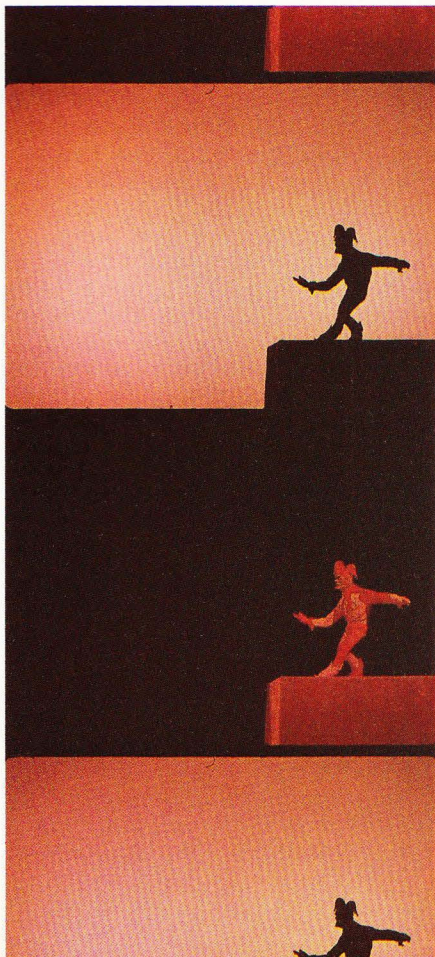
"The infrared test was pretty bad," Kellison laments. "Cascade provided the 3-strip Technicolor camera. They also provided Harry Young, their alleged infrared expert. He knew how to operate the Technicolor camera but didn't seem to know much about infrared! Roy Seawright was the old-time expert at Cascade but didn't want to bother with this test. Young didn't even know how to take light readings. So, the test came out looking less than satisfactory, plus it took forever to get it done."

Edward Small saw the test and wouldn't buy it. The matte densities were way off and the animation was poor. At that point, process projection was in and infrared went the way of the dinosaur. Don Sahlin left for New York and eventually became Jim Henson's chief Muppet creator. Jim Danforth redid the fight between Galligantua and the sea monster all by himself, with a miniature dog in between to boot. Tom Holland stayed on and did his share of animation with Dave Pal, but it became evident to all concerned that Jim's footage was far superior to the others.

### On Meeting Harryhausen

It was a heady experience for young Danforth, meeting Ray Harryhausen at his studio during *The 7th Voyage of Sinbad*. "It

In the black and white clip at far left, animator Tom Holland dances in front of a reference grid. The next clip is the live action set-up, followed by the front-light/back-light animation and the final composite.







It was extremely crowded at the old Project Unlimited studio on Sunset and Vermont in Hollywood. Jim Danforth in silhouette animates a Dynamation shot, while Tom Holland in the background does the same. The projector beams are practically criss-crossed.

totally blew my mind. And like all young people, the experience wasn't enough. I had to do something about it."

It happened on a Saturday afternoon. Ray had just finished with Dolph Sharp and William Woodfield, the author and photographer of the classic Harryhausen piece in *Argosy* magazine. "Ray put me off for several weeks. I would call him on the phone and he'd say, 'I'm under a lot of pressure right now, would you please call back some other time.' He was immersed in the animation for *Sinbad*. After a while, I felt that I had been doing something very wrong, like asking to watch the King and Queen eat breakfast.

"When I finally came over that Saturday, Ray was utterly delightful! Apparently, he and Schneer were running dailies on Fridays and he finally had time to invite guests over.

"Of course, I was enthralled by what I saw! He had just finished animating the baby Roc. There was the pedestal with the miniature egg strapped to it. He was about to cast the Serpent Woman, which I believe was the last thing he did. He was very warm and open and responsive to my interests."

Danforth was so inspired, he decided to do his own advertising drawings for

*Sinbad*. "When you're a kid, anything's possible." Charles Schneer was at the Columbia Ranch shooting *Gunman's Walk* and he consented to talk to the young animator on the set. At Schneer's suggestion, he sent his drawings to Jonas Rosenfeld Jr., then head of Columbia's publicity department in New York.

Jim based the drawings on what he had seen at Ray's shop. Nothing ever became of those drawings, but something very real came out of his visit with Harryhausen. He had seen Ray's Dynamation setups, and although Ray couldn't explain everything to Danforth, it was enough to get him going on his own experiments. Very carefully, he studied stills from *It Came from Beneath the Sea* and *20 Million Miles to Earth* and chipped away at Dynamation, to the point where he felt comfortable in applying it to a professional film. It finally happened on *Jack the Giant Killer*.

Recalled Phil Kellison: "Jim had brought in a test reel. It was done in his garage and it was some of the nicest stuff I had ever seen! Two knights, fighting on the edge of a cliff. The figures were very small, perhaps eight inches tall. When Howard Anderson started planning the stop-motion unit for *Jack*, I thought that

we would hire Jim Danforth to work for us. Then, it went through Project Unlimited.

"Gene Warren had interviewed Jim at one time. Jim, who was a rather positive young man, had antagonized Gene in some way. So Gene had his reservations about putting him on. I knew he had already freelanced at Project on several occasions. I don't recall exactly how it went with Howard, but I strongly recommended that we put Jim Danforth on *Jack the Giant Killer*."

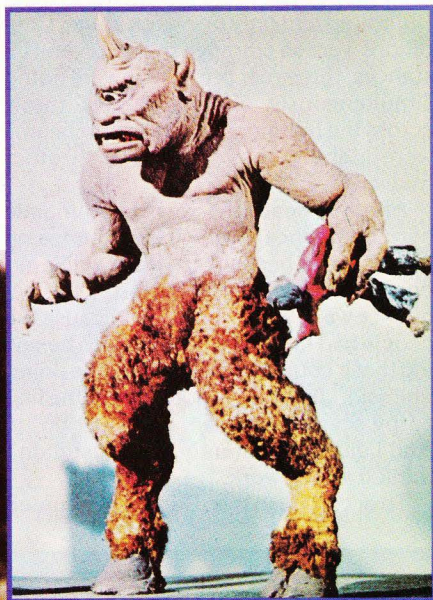
Jim elaborated. "I was a kid. Nobody knew who I was. I was hired by Tim Baar (against Gene's and Wah's wishes, or so I'm told) and was involved almost from the beginning of the effects shoot. I inherited the hard scenes, because the other animators weren't up to the task and because the associate producer, Bob Kent, sent a letter instructing that only *Jim Danforth* do the fight scenes, because the other animators were 'wearing out the puppets.'

"In fact, when I was assigned to the project, I was told that if anyone visited from the Edward Small Co. I was to stop shooting and say that I was only assisting Tom Holland. This was so that Project Unlimited wouldn't lose face for hiring someone so young. From that, to Bob Kent's letter eight months later! Ironical, I'd say."



## Dynamation, You Say?

Part of the problem was Danforth's total awareness of the ingenuity and relative simplicity of Harryhausen's technique, and the ignorance of some of the Establishment figures in that respect. To be put on a major effects picture and know just what to do was one thing; to be scoffed at for being an "impetuous rebel" was another. He was amazed at the cavalier attitude some of the Project Unlimited figureheads had toward Ray's pictures, which Danforth found quite galling. *Jack the Giant Killer* was supposed to be a copycat of *The 7th Voyage of Sinbad*. Yet no one on that production except Danforth understood what Ray Harryhausen had done. Jerry Juran had directed *Sinbad*, but Ray had apparently kept him in the dark about the specifics of Dynamation. To his embarrassment, Juran could not relate any of Harryhausen's "secrets" to Anderson or Small.



"The plan at Project was to use rear projection in concert with *foreground miniatures*," Danforth revealed. "They didn't know how Harryhausen's splits worked. It had never occurred to them that they could make a split screen on a process shot. I think they felt that all those floors and foregrounds 'holding up' the Cyclops were *miniatures*. They were going to reproduce every foreground piece as a miniature set.

"Tim Baar, who had been in the business for a long time, complained about the producer wanting the monster to go behind the wall in the process plate. As Tim saw it, we would have to build a miniature wall. I said 'Tim, slow down, there's a way to do that!' He didn't get it. Two months later, they're still trying to build these miniatures. Had that gone on, we would've been working on the movie a year longer than we had. I said 'Look, guys. You don't have to build a miniature cliff everytime the giant has to come from behind it.'

"I brought in all my Harryhausen stills and explained it to them and it just didn't register. I showed them a shot from *The 7th Voyage of Sinbad*, the one of the Roc chick hatching out of the egg. 'What did

Ray do,' they asked, 'anchor the egg shell to a piece of glass?' 'No,' I explained, 'it's a *split screen*. You photograph the top part, take the table away, mask the top on glass, and photograph the bottom of the background plate.

"Next thing I knew, someone at Project had a piece of black cardboard nailed to one side of a 2x4, and the other piece to another 2x4 on the other side of the set up. He was taking a razor blade, trying to cut a matte to match the edge of the rear-projected cliff. I came over and showed them how to use glass.

"Phil Kellison tried an experiment putting tape on the glass, then spray-painting the glass and peeling the tape away for a countermatte. But in 35mm, you get a line. It's too exact; you need a gap.

"I convinced them to use process projection solely without the use of foreground miniatures," Danforth asserted. "If I had to take credit for anything in *Jack the Giant Killer*, it would have to be that and nothing else."

The first sequence to use rear projection and opaque glass mattes was that of the mechanical court jester emerging from a music box, which turns out to be the giant Cormoran in diminutive form.

The final battle of the sea-monster and the two headed giant featured two very crude puppets animated by Jim Danforth. **Inset:** Harryhausen's Cyclops was feebly imitated in *Jack*. This *7th Voyage of Sinbad* creature was sculpted by Harryhausen with taxidermy by George Lofgren.







Pendragon transforms himself into a flying monster (shades of Disney's *Sleeping Beauty*) for the final battle. Danforth animated the harpy by mounting it on a rod that went back to a plexiglass sheet behind the process screen. Filmed on January 30, 1960.

Tom Holland animated it with the assistance of Ralph Rodine. Some scenes used front light/back light mattes in order to make the puppet appear very small relative to the background scene. Unsure of how the figure was supposed to move, Holland had someone film him dancing against a wall grid which he tried to copy frame by frame.

"He also had a most peculiar animation technique," Kellison mused. "Instead of using surface gauges and imagination to make this thing move, he would set up an 8x10 camera near the taking camera, and he would *draw* the creature in this position on the groundglass. Then, he would move it a bit and use the drawn outline as a reference. This worked well for him, but it was so time-consuming! He also discovered that as he animated the character, it would veer off its axis. He would then set up *two* 8x10 cameras and draw on both ground-glasses! The whole sequence was shot that way. Despite all his calculations, the moves weren't smooth enough. But because the little character was supposed to be an automaton, you could buy it."

Another trick Jim Danforth created for *Jack* was the "animated glass shot" which developed over a dispute with the director. It was probably the most expensive frame by frame animation done at the time. It meant painting part of a rear-projected figure on a single glass sheet, in oils, and scraping it off for the next position. That way, the projected figure of Jack could move in front of the puppet without becoming obscured.

According to Danforth, "The animated glass shot was actually Phil's idea. He wanted it done because I think he was peeved with Jerry Juran, who kept telling Phil what could and couldn't be done in the absolute sense! The shot called for

Jack and the girl to run in a particular arc near the gristmill, and they realize that this would take them in *front* of the giant's foot. They didn't want the giant to back out of the scene, make room for them, and come back in.

"As I recall, Juran's solution was to put a miniature wagon in front of the giant's foot. So the inference is there—you see the heads of the rear-projected actors, and you assume that they must have gone in front of the puppet. But the actual point of contact would be masked by the miniature wagon. I guess that made Phil mad, that Juran was trying to work out these problem. So, Phil decided that we would show him a thing or two."

This procedure had actually been done for an earlier shot (a night scene) in which knight was supposed to pass in front of the giant's leg. Dave Pal had animated another cut similar to that. Danforth agreed to follow through with the added trickery.

"Phil had suggested that we line up some miniature helmets on wires in front of the process screen. I believe I said, 'No, let's do it on glass, it would be faster.' When the gristmill shot came about, there was no longer any discussion about model parts; the glass technique had been successful. I worked all night on it. It took me 30 hours to do it."

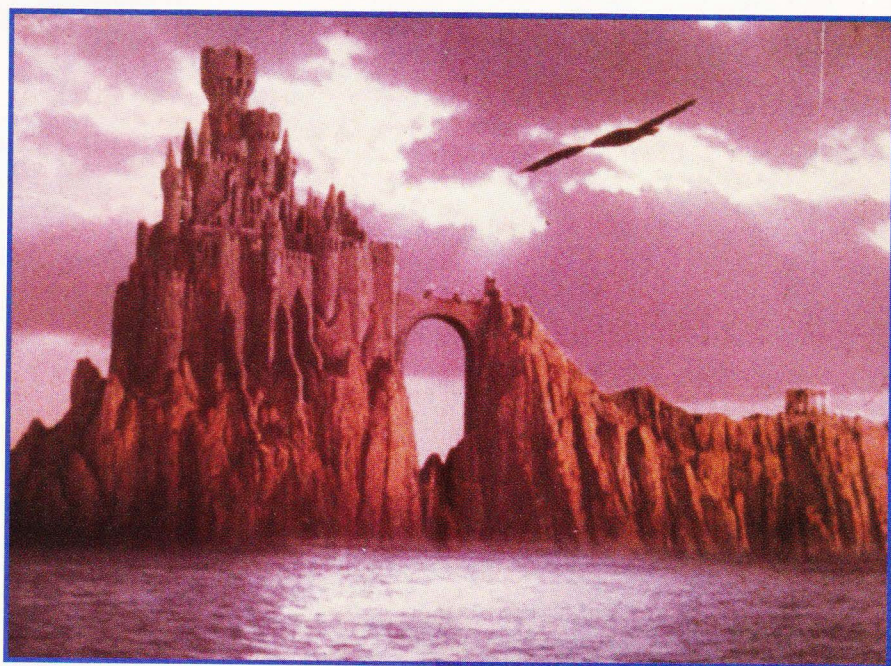
"My only objection," Kellison countered, "was the time it was taking. To Jim, time meant nothing, as long as he could get the shot. The detail couldn't be beat. Jim was fabulous! Difficult to work with, but fabulous."

### A Grueling Ordeal

The stop-motion/process work for *Jack the Giant Killer* became so harrowing, the crew thought it would never end. Project Unlimited had only one work stage. Conditions were so cramped that in several instances, three rear projectors were going simultaneously on the longest throw across the building. The projector beams were literally criss-crossing each other midway!

Another headache was the climactic harpy sequence in which Jack jumps on its back and hacks it to death while airborne. According to Danforth, the sequence was almost scrapped because the people had talked themselves into believing that it couldn't be done. "At one point, Phil said, 'Jim, you've got to shoot the first harpy scene. Don't ask why, just do it.' And I did it. Apparently, they just didn't think it would work."

To accomplish this, Danforth mounted



Pendragon's castle in miniature was filmed against a sky backing and split-screened with foreground water.



the creature on a rod which went back to a big sheet of plexiglass *behind* the process screen. Years earlier, Gene Warren and Wah Chang had built a little frame of plexiglass for a spot called *Suzy Snowflake*. The frame was animated horizontally and vertically while the puppet was attached to the plex, eliminating the need for wire work. For the harpy, Wes Thompson built one on a larger scale.

"I think it was figured out that if we put the process screen on the *front* side of the plex, we wouldn't get any reflections," Danforth explained. "What we had to do was cut a hole in the process screen so the rod could be extended through the screen toward the camera. It worked out well. We only had reflection problems of light bouncing off the wooden frame."

Other harpy shots used alternate-frame front light/back light mattes and "density" mattes to insert the puppet into the backgrounds. All this, to simulate what Ray Harryhausen had achieved with one uniform method.

The real killer was Edward Small's editor, Grant Whytock, who refused to use two cuts of the same angle. In *Sinbad*, Ray had about 100 animation cuts. But he had only made 25 or 30 *setups*. In *Jack*, every setup had to be different, which meant making a different miniature or a different set of matte glasses for every cut!

"If I remember rightly," Kellison winced, "we had to do 179 cuts. That was almost twice as much as Ray had. And everyone of ours was a different setup! We had to cut the animation tables in half and re-position the process screens. Some of the stuff was wonderful. We did some great things. But because of Small's attitude and his editor, the picture went *way* over budget, to the point where it could never be a financial success."

The effects for *Jack the Giant Killer*



Phil Kellison demonstrates the replacement glass plates which animated the effect of sand being tossed into the Cormoran's eyes.

started in September 1960. It didn't let up until July 1961. Ten months of exhausting labor, almost as much as what had been expended on *Mighty Joe Young*.

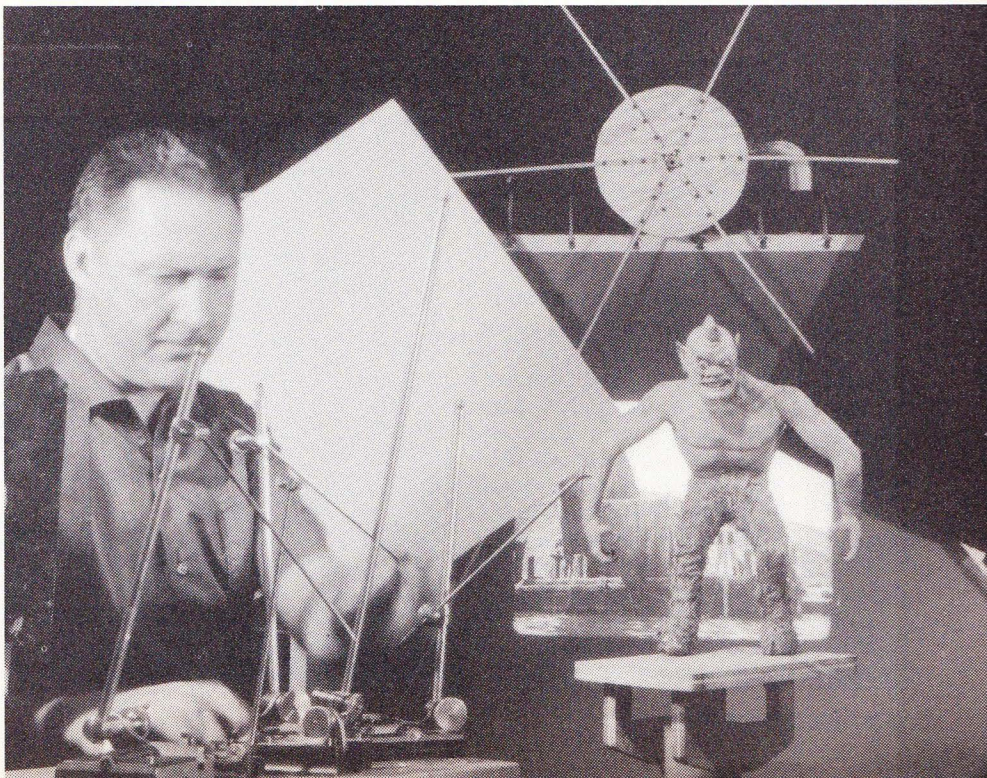
After its release, the picture underwent a bizarre permutation. Exactly when this happened is not known. Rather than shelve a box office failure, someone at United Artists decided to turn the film into a musical! Most of the original score by Paul Sawtell and Burt Shefter was re-

placed. Some of Kerwin Mathews' dialogue scenes were reworked on an optical printer, altering his mouth movements to accommodate *songs*. The actor was no doubt astounded to see his lines suddenly transformed into musical serenades to Judi Meredith in someone else's voice! Problem was, any background movement behind him (including water) was automatically speeded up and slowed down as the songs progressed.

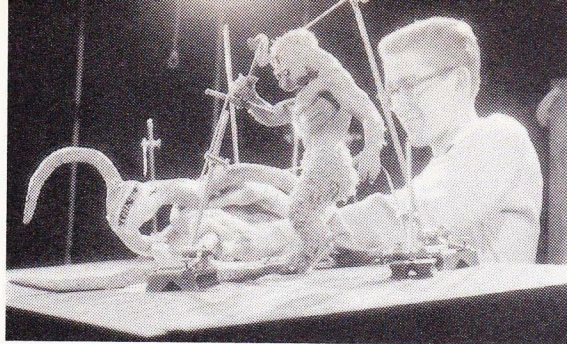
Stop-motion supervisor Phil Kellison poses with the Cormoran puppet and a battery of surface gauges. The circular rig in the background is an aerial brace.



The Cormoran is blinded by sand.







Jim Danforth animates the battle of the sea monster and the two-headed giant.



Phil Kellison with the original *King Kong* puppet, which was stripped down to its armature for *Jack*. The armature was very worn, so a new armature was constructed.

The result of this optical alteration was something that can best be described as charmingly atrocious.

The sad footnote to this entire experience was a lawsuit that tied the film up in court for years. *Jack the Giant Killer* was released by United Artists, but it was owned by Edward Small. According to the prevailing story, Small thought for sure that he was going to have another *Sinbad* on his hands. So did United Artists. For that reason, they wanted to get it away from Small. But Small wouldn't sell it. In order to create a situation, UA refused to publicize it. The picture just dribbled out. They were hoping to make the initial release unremarkable so Small would be persuaded to sell it. With that done, United Artists could pump it up and distribute it with a fanfare. How much truth there is to this scenario is not known.

At any rate, Edward Small took United Artists to court. A fight ensued and the whole affair became embroiled in a lawsuit which was never adjudicated.

Except for its initial roadshow, the film was never distributed. The litigation problems prevailed for years afterward and the

movie has all but vanished.

If you have cable TV, you might catch an orphaned print of one of the most eccentric special effects flicks of the sixties.

If not, it just might be sitting on a rack at your local video store someday.

It's called *Jack the Giant Killer*. It might come back. But don't hold your breath. **CM**

Animator Dave Pal was responsible for 65% of the stop-motion sequences in *Jack*.





# The Story

Pendragon, a sorcerer, has been banished from Ancient England and with him all giants, vowing to take the throne of Cornwall occupied by King Mark. Disguised as a present to the King's daughter Elaine is a music box from which emerges a miniature court jester. At night, the jester grows into Cormoran, a hideous 20-foot giant, and kidnaps her. Before Cormoran can deliver the princess to Pendragon, a farmer's son named Jack kills the monster with his axe. In gratitude, the King knights the brave lad, who is henceforth known as Jack the Giant Killer.

Jack is entrusted with the task of spiriting Elaine to a convent across the sea where she will be safe until Pendragon can be put out of

the way. But the sorcerer has bewitched Elaine's lady-in-waiting, who informs her master of the plan.

Pendragon sends witches and ghouls to intercept Jack's ship and Elaine is again kidnapped. Jack and 12-year old Peter are cast overboard and picked up by Sigurd the Viking. Eventually Sigurd fishes up an Imp imprisoned in a bottle, who helps them find Pendragon's uncharted island.

Through the Imp's magic, Jack is able to overcome Pendragon's evil powers and fight his way into the enchanted castle. He rescues Elaine, but she has been bewitched and betrays him. Before Jack can escape, Sigurd is transformed into a dog and little Peter into a chimpanzee.

At last, Jack manages to break Elaine's spell. When they reach the boat, Pendragon pits a monstrous two-headed giant against

them. The Imp summons up a tentacled sea monster from the ocean bed, which kills the giant in a fierce battle, aided by Jack, the dog, and the chimpanzee.

Together they sail with the princess and head for home. But Pendragon has one last trick up his sleeve, his most terrible: He transforms himself into a giant Harpy and flies out to intercept the small craft. Sword-wielding Jack is carried away on the Harpy's back and manages to slay it in mid-air.

As Pendragon plunges into the sea, his magic dies with him. As for Jack and Elaine, who are very much in love, their future promises to be happy ever after.

*Picture credits: All photos courtesy Jim Danforth, Phil Kellison, Stan Horsley, Wes Thompson, and Paul Mandell.*

## Credits

### The Cast:

|                        |                |
|------------------------|----------------|
| JACK .....             | Kerwin Mathews |
| ELAINE .....           | Judi Meredith  |
| PENDRAGON .....        | Torin Thatcher |
| GARNA .....            | Walter Burke   |
| PETER .....            | Roger Mobley   |
| SIGURD .....           | Barry Kelley   |
| IMP .....              | Don Beddoe     |
| KING MARK .....        | Dayton Lumis   |
| LADY CONSTANTINE ..... | Anna Lee       |
| JACK'S MOTHER .....    | Helen Wallace  |

### The Production:

|                               |                                 |
|-------------------------------|---------------------------------|
| PRODUCER .....                | Edward Small                    |
| DIRECTOR .....                | Nathan Juran                    |
| ASSOCIATE PRODUCER .....      | Robert E. Kent                  |
| ORIGINAL STORY .....          | Orville Hampton                 |
| SCREENPLAY .....              | Orville Hampton & Nathan Juran  |
| DIRECTOR OF PHOTOGRAPHY ..... | David S. Horsley, ASC           |
| CAMERA OPERATOR .....         | Phil Kellison                   |
| ART DIRECTORS .....           | Fernando Carrere<br>Frank McCoy |
| ORIGINAL MUSIC .....          | Paul Sawtell<br>Bert Shefter    |
| FILM EDITOR .....             | Grant Whytock                   |
| SOUND MIXER .....             | John Kean                       |
| SPECIAL MAKEUP .....          | Charles Gemora                  |

### Special Photographic Effects:

|                              |                                                                           |
|------------------------------|---------------------------------------------------------------------------|
| DESIGNER .....               | Howard A. Anderson Co.                                                    |
| CREATURE DESIGN .....        | Louis MacManus                                                            |
| EFFECTS ANIMATION UNIT ..... | Boyd Vaughan<br>Lloyd Vaughn,<br>Nancy van<br>Rensaeller,<br>Don MacManus |
| PHYSICAL EFFECTS .....       | August Lohman                                                             |
| MECHANICAL ENGINEER .....    | Wes Thompson                                                              |

### Stop-Motion Effects:

|                             |                                                    |
|-----------------------------|----------------------------------------------------|
| DESIGNER .....              | Project Unlimited                                  |
| MANAGERS .....              | Gene Warren, Tim Baar                              |
| CREATURE SCULPTURE .....    | Wah Chang                                          |
| MECHANICAL DESIGN .....     | Marcel Delgado                                     |
| MECHANICAL FOREMAN .....    | Victor Delgado                                     |
| PROCESS SUPERVISOR .....    | Phil Kellison                                      |
| STOP-MOTION ANIMATION ..... | Jim Danforth, Tom Holland,<br>Dave Pal, Don Sahlin |
| MINIATURES AND PROPS .....  | Paul LeBaron, Ralph<br>Rodine, Howard<br>Weeks     |
| MATTE ARTIST .....          | Bill Brace                                         |
| DISTRIBUTOR .....           | United Artists                                     |
| RUNNING TIME .....          | 91 minutes                                         |



# Rules for Lighting Monsters

*Spotlighting the Do's and Don'ts of making monsters look their best.*

By JOHN DODS



Dramatic lighting enhances Dod's re-creation of Disney's "Night on Bald Mountain," which Dods' produced for his portfolio.

**R**ick Baker faced a monster-maker's nightmare. *American Werewolf in London* director John Landis was using full, bright, shadowless lighting on the set to photograph the film's key effects sequence—a man's multi-stage transformation into a grotesque wolf-creature. The Academy Award that Baker received for his work on this film speaks of the success of his efforts, but monster-makers usually welcome and rely on the shadows, diffusion, and low-light that are conventions of horror filmmaking. They need these professional tricks to make their creations look dramatic and real. The restrictions of time and money (and talent) typical on independent film productions may make it impossible to match the accomplished realism of a Rick Baker or a Dick Smith. Happily, most directors *want* the gothic feeling provided by the not quite fully seen and the thickly shadowed set.

Here are the rules for lighting monsters to make them look their best—or, if you prefer—their worst. These rules are time-tested and reliable, but like most rules, they are only guidelines; you may sometimes find very good reasons for breaking them.

**Rule Number 1:** *Good lighting is more im-*

*portant than good continuity.* There is usually no shortage of people on a film set anxious to provide reasons why the monster *can't* be lit to best effect. This usually involves pointing out some violation of established continuity. "But there *can't* be a red light coming from under the monster's chin!" a well meaning script-girl or crew member may insist. "It wasn't there in the *last* shot!" A smart director knows that a drooling monstrosity can usually be relied on to distract the audience from a continuity gaff. Continuity bad guys can usually be cut off at the pass through forethought and storyboarding. Continuity *matters*; but if it comes down to a contest, let the monster win.

**Rule Number 2:** *Go With the Flow.* The most unkind light on the set is the light of reality—the revelation that things are not going to work as planned. It's common for monsters to malfunction. Most monsters are prototypes—experimental models. Unless a film has a sufficient budget to allow for research and development, the monster is probably one of a kind, the first and only construction like it and full of the bugs and malfunctions common to all prototypes. Lighting trickery can help to conceal misbehavior in the monster; in this, the shadow is your best friend. The

filmmaker *must* be willing to fall out of love with his beloved storyboard, think fast, and *go with the flow.*

**Rule Number 3:** *If it doesn't look good, don't show it.* This is perhaps the most practiced, well worn, and durable rule of monster film-lighting. Steven Spielberg was forced to apply this to the aliens of *Close Encounters* when faced with mask-like constructions which were too lifeless to reveal clearly. Spielberg silhouetted the figures against brilliant light (using about 6 stops overexposure) and shot them through an artificial mist. In shooting the aliens in this way, Spielberg was applying another rule of monster film lighting:

**Rule Number 4:** *Less is more.* The diffused and partly seen forms of *Close Encounters* are all the more mysterious, other worldly, and compelling for being visually elusive.

**Rule Number 5:** *Don't light the monster from the front.* This type of lighting resembles flash-photography with all its illusion-shattering clarity and flat one-dimensional quality. The famous ET looks artificial in studio publicity photos which were shot with the key light positioned towards the front. These shots present a very different ET than the one seen in the Spielberg motion picture; there, ET was almost always lit low-key on the face with very soft light and from behind with a strong backlight or rimlight; in this type of setup, ET's true rubber character was not apparent.

**Rule Number 6:** *Hard light is bad; don't use it.* Noon sun on a clear day creates light of a hard quality; on an overcast day,

Lighting can enhance or destroy all of the painstaking detail that you have worked into your model.





the light has a soft quality. Hard light is undiffused and creates dark shadows with a sharp defined edge; this accentuates all dimensional features in a model including any irregularities, flaws, or roughness. Soft light is diffused light; it creates shadows which have a lighter tonal value and a soft edge that has a long range of tonal values. Softlit objects look almost airbrushed.

Soft light can be created by covering lights with one of various diffusion materials; many are manufactured for this purpose. Spun glass can be purchased in different forms and can be placed directly over the lights without creating a fire hazard. Tracing paper also works very well as does rear projection material, but these are flammable and must be kept from direct contact with the light. Alternately, softlight can be created by aiming the light not at the subject, but onto a white surface or reflector which is angled so that the surface bounces the light back to the subject scattering it in many directions and thus creating a soft light on the subject.

Enveloping the monster in thick fog or obscuring mist is a popular and classic way of enhancing the appearance of monsters. While this is not a lighting technique as such, the dispersion of air-born particles to create fog and mist profoundly affects the quality of light by acting as a diffusion material. Sometimes monsters are seen emerging from thick cloudlike formations—as in *The Crawling Eye*, *Curse of the Demon*, and *The Fog*. In other films, the monsters are photographed through a veil of mist—as in *King Kong*, old Universal horror-movies, and the “Hammer-horrors;” this latter has an effect similar to a diffusion filter on the camera. There are various methods used to create fog or mist; most of them are of questionable safety and should be used only with great caution.

An article in the June, 1985 *American Cinematographer* states: “Historically, there have been two basic approaches for generating smoke: pyrotechnic smoke and oil smoke. Smoke pots have been used to create smoke effects, and kerosene or mineral oil have been vaporized in aerosol generators. Petroleum-based fluids produce an oily cloud. When inhaled, the oil coats the lungs. The body’s normal filtering system is clogged and a residue can build up resulting in ‘oil pneumonia’ and other serious conditions.”

Burning rolled sheets of newspaper which have been treated with a solution of potassium nitrate (saltpeter) is a method that has been used in the absence of a smoke machine to produce clouds of thick white smoke. Since burning organic material, such as paper, is carcinogenic, this technique is potentially dangerous.

Steam has been used on such films at *The Empire Strikes Back*, (on the Yoda set), and *Greystoke* (on the jungle set). This

## USING COLOR FOR DRAMATIC EFFECT



**NORMAL SHOT**

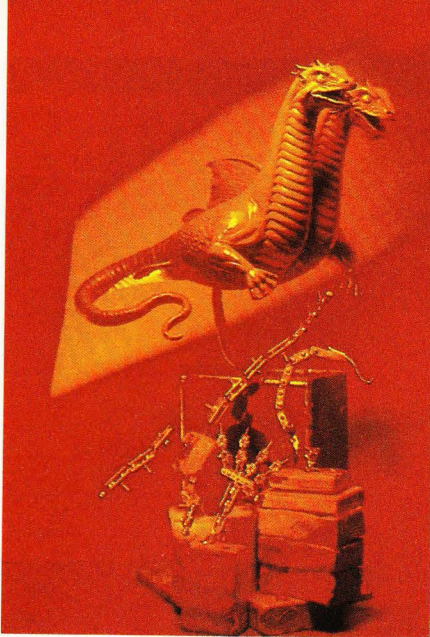


**BLUE FILTERS**



**BLUE & RED FILTERS**



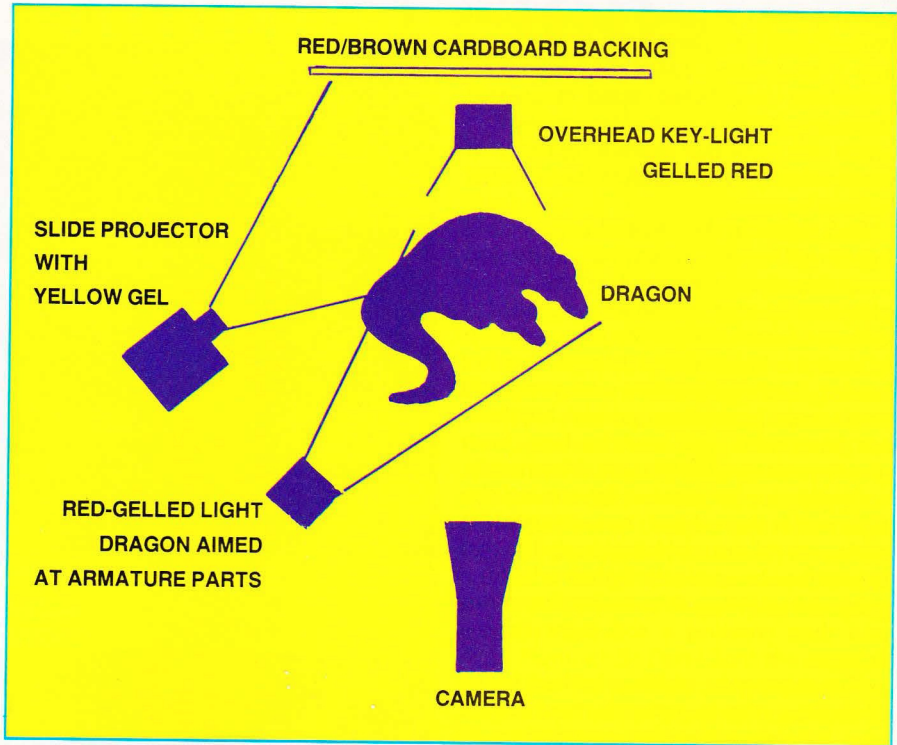


method requires special plumbing installations and is probably beyond the resources of most independent filmmakers.

Rosco Laboratories of Portchester, New York recently introduced a smoke machine that appears to be more safe than commonly used alternatives. It has become widely used in the entertainment industry in such films as *Ghostbusters*, *The Right Stuff*, and *Purple Rain* and such Broadway shows as *Cats*, and *Dreamgirls* as well as Michael Jackson's *Victory Tour*. Rosco's Series II fog machine sells for

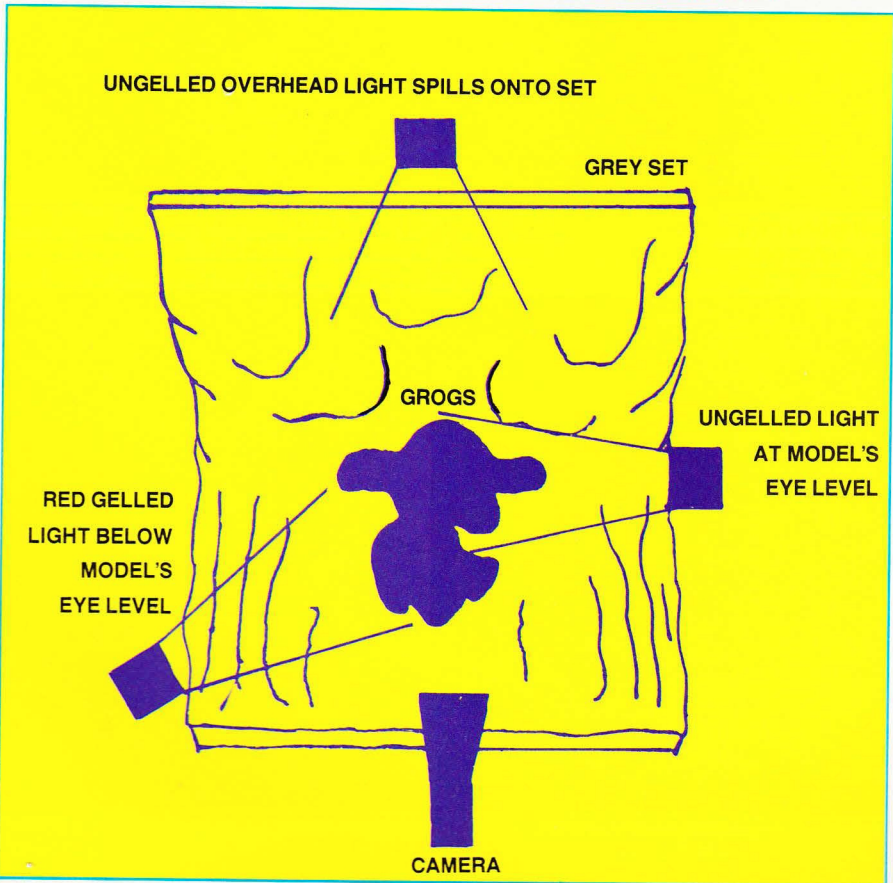
\$628 from Alcone; 1 gallon of fog juice sells for \$50. You can probably rent one from a local film equipment rental company.

## COLORED LIGHT



TWO-HEADED DRAGON © JOHN DODS

## MIXING COLORED AND WHITE LIGHT



TWO GROGS IN CAVE © JOHN DODS

### Hollywood Monsters

I browsed through some recent *American Cinematographer* magazines to learn some of the ways that veteran Directors of Photography have dealt with lighting monsters. "Rick Baker went to great length . . . to get the apes looking just right," says John Alcott, DP for *Greystoke* in the May 1984 issue. "His hard work made it easier for me. OK, the eyes are set deeply into the face, but I would just light them with a torch—a very high powered flashlight called a stream-light. I always light eyes with a torch. I can follow the eyes and it does not destroy the light on the rest of the face. You can't easily follow an artist around with a lamp on a stand."

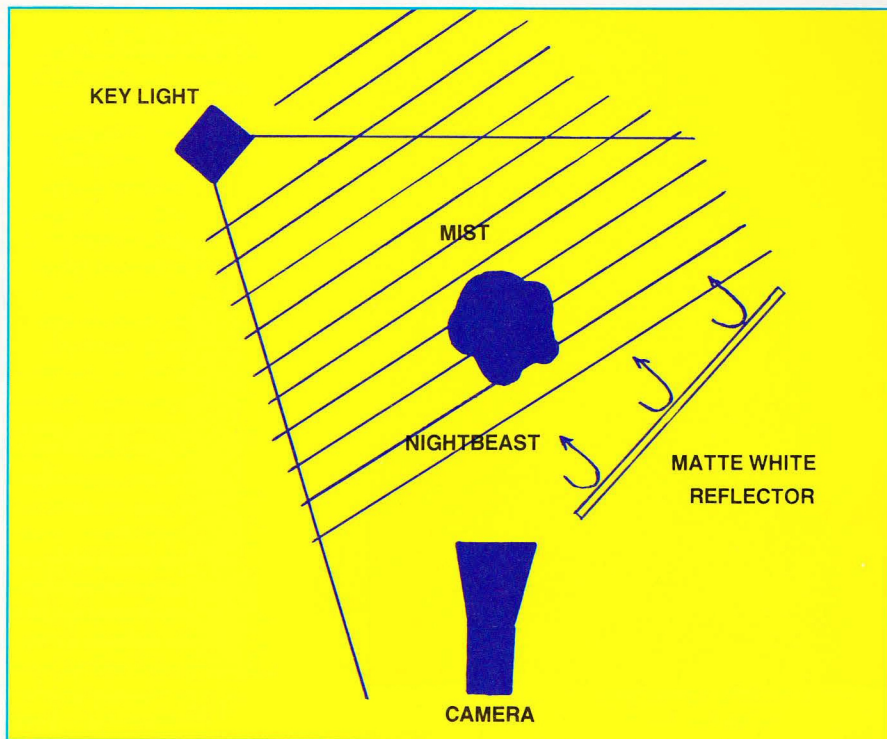
ET's eyes also received special atten-







## MIST WITH BOUNCE LIGHTING



NIGHTBEAST © JOHN DODS

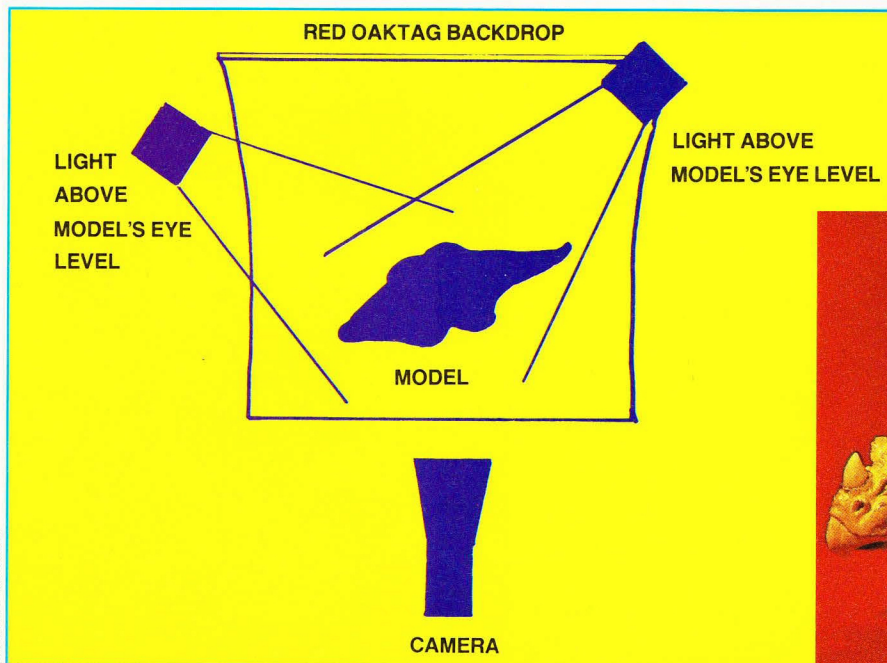
tion from DP Allen Daviau who used a "catchlight" to place a reflection in the immense, expressive eyes. "It was difficult figuring ways to keep ET himself in a constant aura of backlighting," says Daviau, "One of the things that makes ET work as something other than a mechanical thing is having backlight behind him at all times with a lower light level in the face. There was only one scene in the entire picture where there was an overhead light on... it was cut."

"Luckily," says *Gremlins* and *The Howling* DP John Hora, "My background in commercials had prepared me for the great amount of patience you need in dealing with special effects. My work with the foam latex werewolves Rob Bottin designed for *The Howling* also helped me when it came time to do the lighting tests on the gremlins. As they were essentially rubber and much more non-human than Bottin's werewolves, I found that I had a little more difficulty presenting the

creatures that Chris Walas had come up with for *Gremlins*. For instance, I found that simple crosslighting brought out interesting highlights in the gremlins; I also liked to throw green light on them, because it made them look so reptilian. My main concern, particularly with the Mogwais, who were the soft, cute versions of the bad gremlins, was to keep hard light and clear-cut shadows off them. We always tried to protect the integrity of these creatures by not highlighting the fact that they were essentially puppets."

The man-into-beast transformation in *The Howling* is lit in stark contrast to the similar scene in *American Werewolf in London*. Rick Baker had to contend with a brightly lit, nearly shadowless set; in *The Howling*, Rob Bottin worked on a set full of shadows. Slatted venetian blinds cast barlike shadows of the metamorphizing man-wolf. As he walks forward, the

## COLORLED BACKDROP WITH CROSS LIGHTING

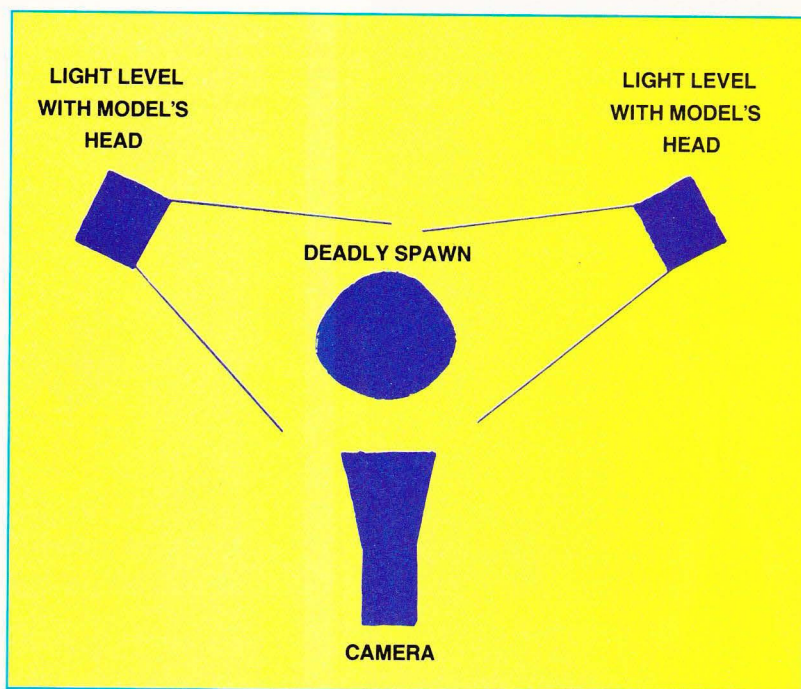


DINOSAUR © JOHN DODS





## UNDIFFUSED CROSSLIGHTING



DEADLY SPAWN © JOHN DODS

shadows pass across his face, the features alternately obscuring and revealing his pulsating physiognomy. The lighting is low-key (in fact some prints of *The Howling* are so dark that it is sometimes difficult to tell what is happening).

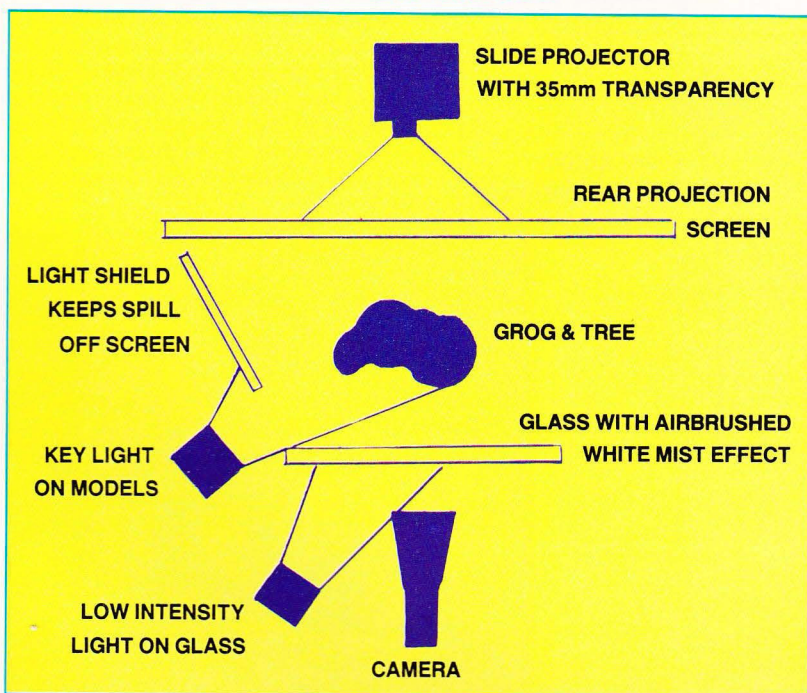
"I loved the way *2001* looked," says Ridley Scott, director of *ALIEN*, "but we didn't want to emulate it by going high-key with a lot of overhead light coming through ceilings filled with plexiglass. We wanted our lighting to be very directional and for the sake of the story, rather low-

key, gloomy, melancholy and depressing." *ALIEN* DP, Derek Vanlint, describes the lighting for the climactic scene in which the escape pod's lighting systems run haywire and the alien creature appears in a blaze of flashing light: "I photographed the sequence in the escape craft with a spot with a dimmer on the front. It was a direct spotlight to give a general strobe effect. Also... I was using about four of the ordinary strobe flashlights—all of them fixed to a kind of very, very small stomach dolly to give an

out-of-sync, random strobe effect. I thought it looked very good... when the creature came out of the wall."

Even the most unimposing of monsters may become shocking creatures of high drama through the smart application of these rules of monster film-lighting. Light, color, shadow, and mist—the staple tools of monster photography—are inexpensive, time-tested, and completely effective. They are available to everyone. Well, *almost* everyone; Rick Baker isn't always so lucky.

## MIST ON GLASS



GROG IN MIST © JOHN DODS



PHOTOS: ALL CHARACTER DESIGNS ARE © JOHN DODS

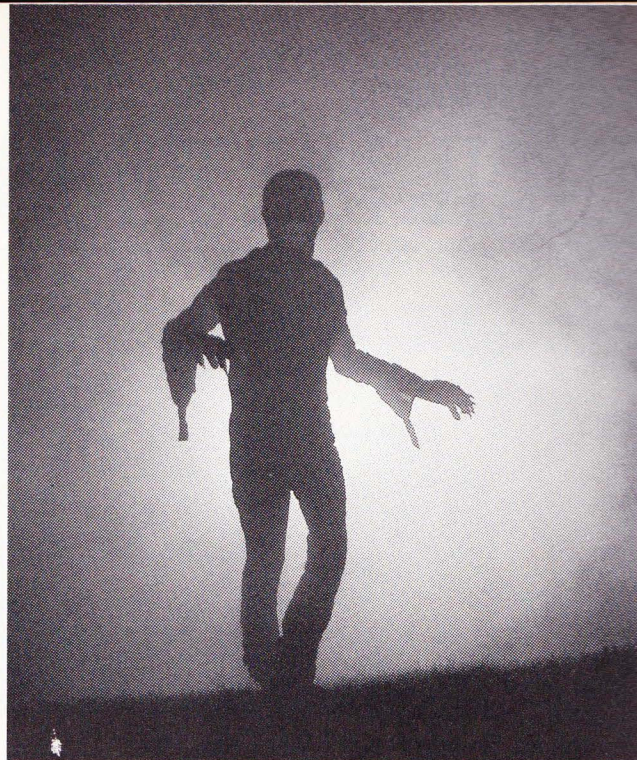


## Lighting Monsters for Portfolio and Publicity

In the publicity photo and the monster maker's portfolio, the lighting had better be good; there, no film editor can come to the rescue with a quick cut; there, the monster is revealed for the viewer to study at length. In a portfolio photograph, the purpose is specifically to *show the work*, thereby limiting the allowable use of obscuring tactics; shadows and mist must be used with discretion—with mystery used in small doses only.

Color may be the monster-maker's strongest ally in portfolio photography. A photograph that looks good makes the work in it look good. Even a drab grey sculpture turns vibrant when you use gels over the lights and strongly colored backgrounds. Here are some rules for lighting portfolio and publicity photos:

- *Use the right film:* Kodachrome and Fujichrome render colors with greater saturation than most films.
- *Use colored filters on the lens when appropriate.* This adds color, though in an indiscriminate way, tinting everything equally.
- *Use colored gels over the lights;* this is the most commonly used way to introduce additional color to a shot. Pro gels are available from Alcone in New York City and pro photo stores. Rolls of colored cellophane—often selling for less than one dollar per roll—are perfectly OK to use; this less durable alternative is sold with wrapping paper or in art supply stores; this type of geletin isn't heat resistant and can't be put directly in front of a light; it must be hung 12 to 24 inches in front of it.
- *Use colored reflectors.* If bounced light is being used, a colored flat surface can be used as a reflector to introduce extra color into a shot.
- *Add color to the background.* Plain black backdrops are often the best way to dramatically present a monster, but if brilliant hues are what you want, colored drops come in many forms. Pro photographers use large rolls of colored paper. These are available in different widths. A 48-inch wide roll sells for under \$30; this is large enough to accommodate a Frankenstein monster-sized creation. Paper rolls are available at photo stores that service pros. A paper roll can be supported by an improvised arrangement of two light stands and a pipe going through the tube on which the paper is rolled. A pro support



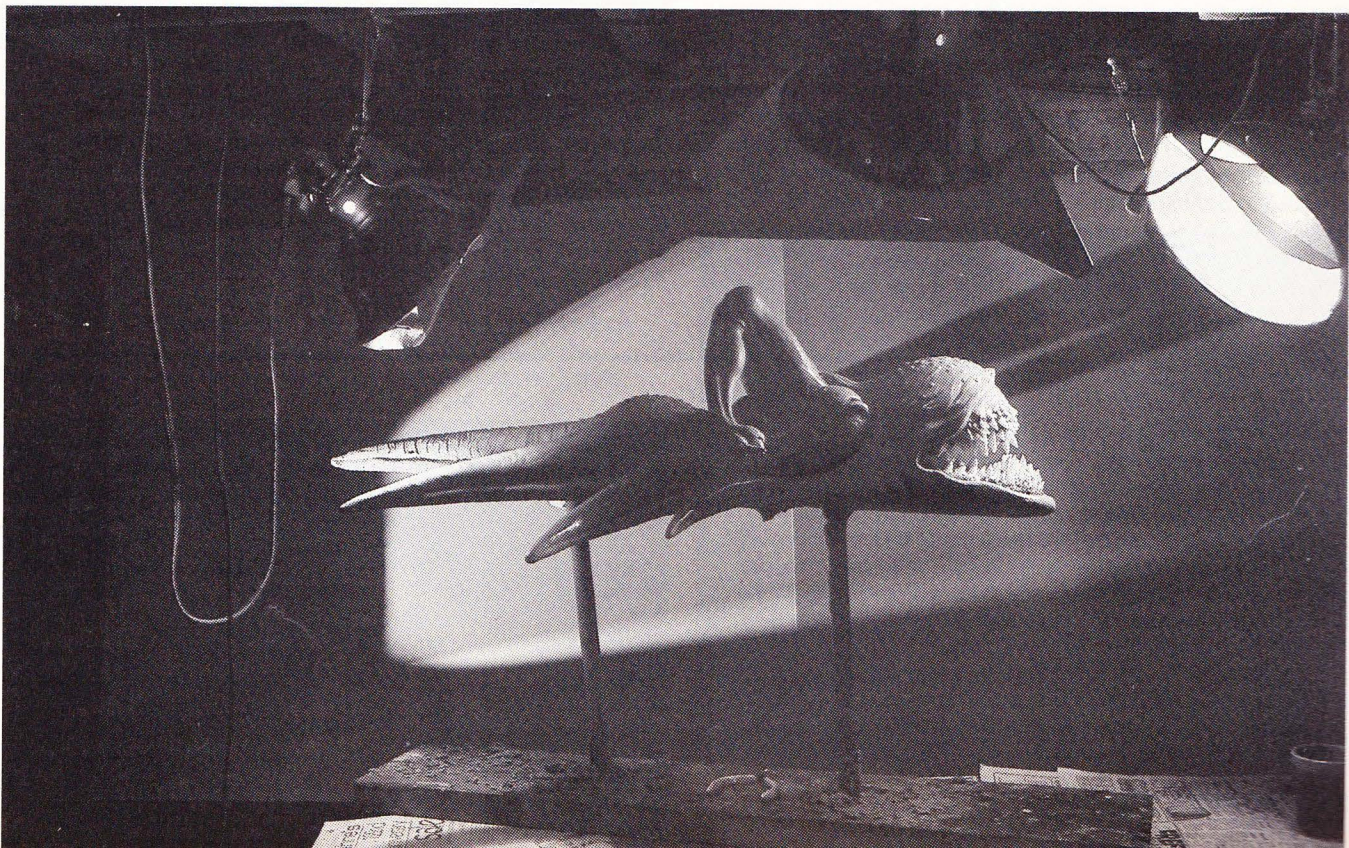
Atmospheric effects such as smoke and mist can add enormous power to almost any lighting effect.

system costs about \$40 or more. If you are photographing a small model, colored oak tag—at 50¢ per sheet—is a bargain too good to pass by. If an exact color is wanted, a quart of latex wall paint can be custom mixed to cover a large plywood or particle board flat.

- *Use red.* If you have to choose only one color for the light that bathes or backs your monster, make it red. Red is the universal signal for danger. It is the most startling and arresting of colors. Magazine editors like red because of its eye-catching character, and are more likely to run your shot in color if it makes dramatic use of this vibrant color.

Refer to CINEMAGIC #25 and my article "Shooting Publicity Stills" for a longer discussion of this specialized area of picture making.

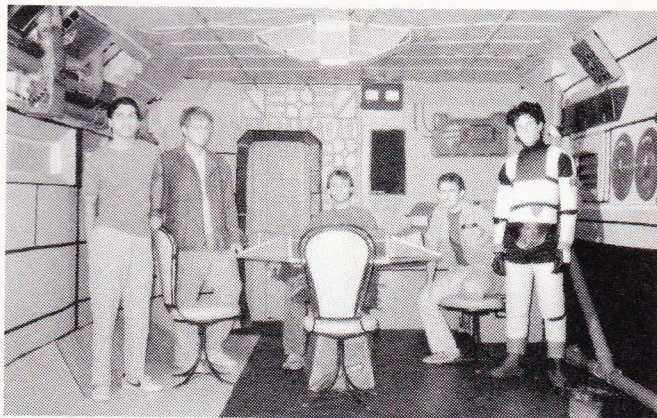
CM





# BULLETIN BOARD

Latest news of our readers' productions.



**Wasteland.** Set in post World War Three. Three scavengers kill a stranded truck driver. A wanderer, Nomad, tracks them down. He becomes their judge, jury, and executioner. Old law and order is thrown away. Nomad becomes a harbinger of death. Values mean nothing to him. His eyes find one lone flower growing in burnt earth. He wonders if there is any hope to survive. Producer/Director/Writer: Joe Bagnardi. Cast: Ron Rausch, Anne Bagnardi, Rick Krzykowski, Larry Hickey. Stills: Ed Dimmer. Super-8, silent, color. Running time: 8 minutes. (J.B. Productions, c/o Joe Bagnardi, 33 Clinton Avenue, Rensselaer, NY 12144.)

**Grave Robbers from Outer Space.** A low, low, low budget horror comedy inspired by (but not stolen from) Edward D. Wood's immortal SF classic *Plan 9 from Outer Space*. An old man is killed by three punks on his way to church bingo, and returns from the dead to get revenge. Meanwhile, Inspector O'Grady follows the trail of bodies in an attempt to bring the undead killer to justice. Director: Scott Lefelar. Writers: Will Pfeifer and Tom Wood. Cast: Scott Lefelar, Nick Scarmuzzi, Tom Wood, Will Pfeifer, Joe Hendry, J.J. Scarmuzzi, Ray Hall, Stephanie Lefelar, Don Lefelar, Mary Lou Lefelar. FX include: blood, particularly bad dubbing, gratuitous zooms, inconsistent lighting, and a swell Tor Johnson mask. Filmed in Terror-rama. Videotape, color, sound. Running time: Approximately 30 minutes. (Mutated Films, c/o Will Pfeifer, 510 N. Bentley Ave., Niles, OH 44446.)

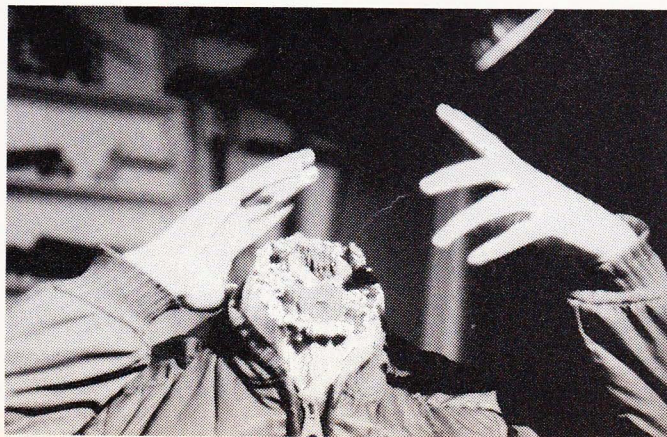
Please forward announcements of film projects in current production or near completion to Producer's Bulletin Board, c/o CINEMAGIC, 475 Park Avenue South, New York, NY 10016. Please include a photograph of some phase of the production if possible.

**... And the Moon be Still as Bright.** Based on the Ray Bradbury short story of the same title. This story deals with an exploration of a distant world for the purposes of colonization. One man, Spender, goes off to explore a glittering alien city on the horizon. His discovery will change his mind about the mission so that he will never let this world become an earth colony. Producer/Director: Joseph Grossberg. Cast: Todd Weiss, Dan West, Rob Muldowney, Pan Shah and Matt Jetzt. Special props, effects and set construction: Joseph Grossberg, Bengy Grossberg and Dan West. Super-8, color, sound. Running time: about 15 minutes. (Joseph Grossberg, 25 Duncan Dr., Morganville, NJ 07751.)

**Life Socks.** Just when you thought it was safe to do the laundry again; out of the depths of your washer and dryer comes the ultimate terror. . . . socks that not only cling, but kill! Producer/Director/Writer: Regan Darcy, Camera: Brad Darcy. Cast: Regan Darcy, Tom Darcy and hundreds of filthy socks. FX include: stop-motion animation of socks, cable-controlled socks and flying socks combined with live action. Super-8, B&W, silent. Running time: five minutes. (Darcyrma Productions, c/o Regan Darcy, 1177 Albert Rd., N. Bellmore, NY 11710).

**The Patrolman.** When you can't trust the law, who can you trust? Action/Suspense. Mad psychopathic maniac on the loose in a patrolman's uniform. Lt. Paul Hirschfield is assigned to the case. Thrilling to the last minute!!! FX include: gunshots, sound effects, blood, knife-in-chest and more! Director/Writer/Producer: Josh deNeveu. Set Decorator: Jon Greene. FX: Josh deNeveu, Jon Greene and Matt McCain. Original Synthesized Music: deNeveu—Copyright 1986, Cinetheme Inc. Cast: Matt McCain, Jon Greene, Sean Keith, Daniel Boone and Josh deNeveu. (Cinetech Creations Ltd., c/o Josh deNeveu, 11525 Memorial Dr., Houston, TX 77024.)

**Appleblossom 37.** A special yuletide greeting awaits the seniors of Lincoln Howell School as a series of bizarre murders wreaks havoc with the schools attendance and the towns population. A video promo has been finished with the feature soon to go before the lens. Directed by David Eddy; make up effects by Jack Hojohn (who co-wrote the story with Eddy); effects assistant Jerry Constantino. The film will feature songs by Assailant and Metal Blade/Capitol recording artists Omen. The film will star S.E. Zygmont ("Bits & Pieces") David Campbell ("Aerobicide") and Shelia Fonda. 35mm, color, sound, approximate running time: 90 minutes. (David Eddy, 6446 Lexington, Suite 41, Hollywood, CA 90038.)





**Horror Movie.** A parody of horror films, this movie depicts nothing more than random acts of senseless violence. There really is no defined plot to it, just the need to rub out teenagers at the directors will. FX include: torn off fingers, burn and laceration victim, corpse heads, cut throat victim, various graphic wounds, and much more. Super-8, color, transferred to 1/2-inch video tape. Copies available on VHS or Beta format. Running time: Approx. 5 minutes. Recorded in stereo. Written and directed by Tim Burkman. Cinematography by Chris Wiler. Special makeup efx by Tim Burkman. (TBF Films, c/o Tim Burkman, 3131 Rutledge Way, Stockton, CA 95209.)

**Other World Adventure.** Mission is to save families from giant dinosaurs and flesh-eating inhabitants; violent and gory; 3rd in series soon to be completed; special effects include all stop motion animation with 12 characters, space ships and laser battle. Running time: 15 minutes. (Lance Griffing, P.O. Box 8795, Reynolds Station, Winston Salem, NC 27109-8795.)



**Horror Brunch!!!** Comedy/Horror. A nice Sunday brunch goes bad. Described by one viewer as, "Herschell Gorden Lewis meets the Three Stooges." Director: Rik Joel Carter. Producers: Kevin Bemel and Rik Joel Carter. Director of Photography: Katherine M. Butler. Special Makeup Effects: David Stinnett. Music: Bill Parsley. Sound Recordist: Mike Wiseley. Makeup/Hair: Donna Wiseley and Gabrielle Hensinger. Effects Crew: Jane Whitehead, Dark Hoffman, Bruce Ige, Donna Wiseley, Gabrielle Hensinger and John Jockinsen. Production Manager: Ruth P. Mulligan. Production Designer: John Jockinsen. Cast: Bill Parsley, Dark Hoffman, Victoria Turner, Jeannie Hawkins, Laurie Pierce, Steven M. Vasquez, J. L. Petris and Bruce Ige. 16mm, color, sound. Running time: 5 minutes. Completed. (Center Cinema Enterprises, 11601 Walnut, Orange, CA 92668.)

**Wasteland II: Nuclear Winter.** Natural Enemies, Nomad the Wanderer and a Russian, find a common bond . . . friendship . . . in post nuclear winter. Will it be enough to keep them alive against Society's Outcasts? Producer/Director/Writer: Joe Bagnardi. Cast: Ron Rausch, Anne Bagnardi, Paul Henk, Gary Secor. Ed Dimmer. Super-8, color, silent. Running time: About 12 minutes. (J.B. Productions, c/o Joe Bagnardi, 33 Clinton St., Rensselaer, NY 12144.)

**Dancer At Dawn.** In this one-character story of the future, we are shown a time when all forms of artistic expression are banned by society. What happens when one of the citizens of this future world decides to violate the law? Find out in the stunning conclusion. Super-8, color, sound. Running time: six minutes. The Dancer: Miss Andrea Hoekstra. (Metro East Film Makers, c/o Dan McGee, 4025 Gaslight Walk, Apt. 1, Granite City, IL 62040.)

**Ranko II.** A follow on from "Ranko—Son of Rambo," a spoof on *Rambo*. This time around, our hero, Ranko, played by Steve Brooks, rescues hostages from the clutches of evil terrorists, then returns to the community, where he settles down and marries, only to lose his wife to a marauding gang of baddies (led by actor Jeff Parry, who played Bubba Zanetti in *Mad Max*). Now in a highly emotional state, Ranko decides it's time to clean up the streets. Is anyone safe? Currently in production. Directed by Aaron Stevenson. Produced by Aaron Stevenson, Steve Brooks, Brian Griffin and Nick Cleave. Edited by Aaron Stevenson and Brian Griffin. Super-8, color, sound. (Transferred to video). Running time: approximately 25 minutes (Brian Griffin, Lot 7 Merindah Rd., Lockwood, Vic., Australia, 3551.)





## How to Beat Strobing

*Make your stop-motion films more realistic by eliminating the distracting "Strobing" movements associated with dimensional animation.*

**E**very fan of model animation—which includes, I would imagine, most readers of CINEMAGIC—eventually encounters some critics of the much-maligned technique. These critics come in different types. The ones who know almost nothing about stop-motion simply sneer: "Unrealistic!" Those who know a little more—but not much—grumble: "It's jerky." Those who know a fair amount—but perhaps not quite as much as they think—quietly say: "It strobos."

This last, it would appear, is the killer criticism. Unrealistic? No effects technique is truly realistic, and stop-motion does things the others can't. Jerky? A skilled animator has learned to avoid halting, stop-and-start action. But strobing seems inherent in the stop-motion process.

What is strobing? If you were to film, say, a galloping horse and then examine each single frame, you would see that the horse's legs appear blurred. When the film is projected this blurriness gives the motion the lifelike quality of all live action. But if you animated a model horse in a gallop and then looked at the single frame, you would see no blur in any part of the image. The model, after all, was not really in motion: it was photographed in a series of static poses. This means that when the film is projected, the movement will not appear fully lifelike. It will have an unrealistic, slightly cartoon-like quality. It will "strobe."

For a more immediate example, try waving your hand in front of a television screen. Because the phosphorescent TV tube emits light as a pulse, it illuminates your hand only intermittently. This is why your hand appears to strobe.

If strobing detracts from stop-motion's realism, is there any way to eliminate it? The highly skilled technicians at Industrial Light & Magic have done so by hooking up the animation model to a computer, which moves the model in slow motion before a camera clicking off single frames on time exposures. This process, dubbed "go-motion," yielded the impressive footage seen in *Dragonslayer* and *Return*

*of the Jedi*, but it is cumbersome, vastly expensive, and limited in its applications.

There is another way—a way pioneered by Jim Danforth in his groundbreaking effects work for *When Dinosaurs Rule the Earth*. In CINEMAGIC #29, John Dods aptly pointed out that this 1969 film "is like a text of advanced animation technique. [To avoid strobing] Danforth introduced the effect of blurring parts of the model's anatomy by means of multiple frame exposures.

"In the plesiosaur sequence," Dods elaborates, "the model's fin pulls against a rope that restrains it until finally the rope breaks with a sudden fast movement. As many as five exposures were made on each frame of film with the fin being moved into slightly different positions between each of the multiple exposures. This created the look of a blur which would be characteristic of any fast moving object. Danforth thinks that the use of Vaseline applied to a sheet of glass in front of the model was even more satisfactory as a means to simulate blurring."

Multiple exposures on a single frame do not actually produce a blur—only, as Dods says, "the look of a blur," a faint ghost image which softens the hard edge of the action. Vaseline actually does blur the image somewhat.

It's important to realize that strobing is not a particular problem in slow or moderately paced action, where the image would not be blurred anyway. Imagine a shot where a creature is looking around. It hears something and whirls in the direction of the noise, then stares at what it sees. The model's opening and closing positions—the "extremes" of the action—are virtual "holds," requiring only subtle movements. (For a discussion of extremes, holds and other animation techniques, see my article "Model Behavior" in CINEMAGIC #24.) But there are perhaps six to ten frames in the middle of the shot, where the model turns, that would suffer from strobing. These are the frames where a blur would help.

You don't need sophisticated equipment to put a blur on these frames. You

can do it even in Super-8—though 16mm, with its superior registration, is always better for multiple exposure work. I have used the Bolex Rex 5, a spring-wound 16mm camera with single-frame and backwind capabilities, to double-expose key frames of animation with perfectly acceptable results.

To demonstrate the use of both double exposures and diffusion to improve stop-motion's realism, I put together a simple set-up featuring my own plesiosaurus—or part of one, anyway. Then I took three still photos. The first was done in a totally conventional way, for purpose of comparison.

For the second, I tried Danforth's "selective diffusion" technique. To do this, shoot the effects through a sheet of clear glass. Then, when you want some part of your creature—such as its head—to blur during a rapid move, apply a small amount of Vaseline to the section of the glass which corresponds to the head. You will have to check the alignment through the viewfinder. Adjust the Vaseline to follow the head's movement frame by frame and wipe it off once the movement is done.

The third photo was double-exposed in the camera to create the faint ghost image which simulates a blur. When you double-expose a frame you must remember to adjust the exposure in advance. Each higher f-stop lets in only half as much light as the previous one; for instance, f/8 lets in half the light allowed by f/5.6. So if you are shooting normally at f/5.6, simply switch to f/8 before exposing the blurred frame. Shoot the frame, rewind the film one frame in the camera, reposition the model slightly, and shoot the frame again. The two exposures at f/8 will yield the same amount of light on the film frame as a single exposure at f/5.6. Obviously, you must switch back to f/5.6 once you go back to single-exposing frames.

It almost goes without saying that to do precise superimpositions of this sort, you must have a steady tripod, preferably weighted down with sandbags or heavy chains—a high-quality animation model,



capable of precise movements—and at least one surface gauge, a tool used to improve the accuracy of model animation. (The “Model Behavior” article also discusses how to make and use a surface gauge.)

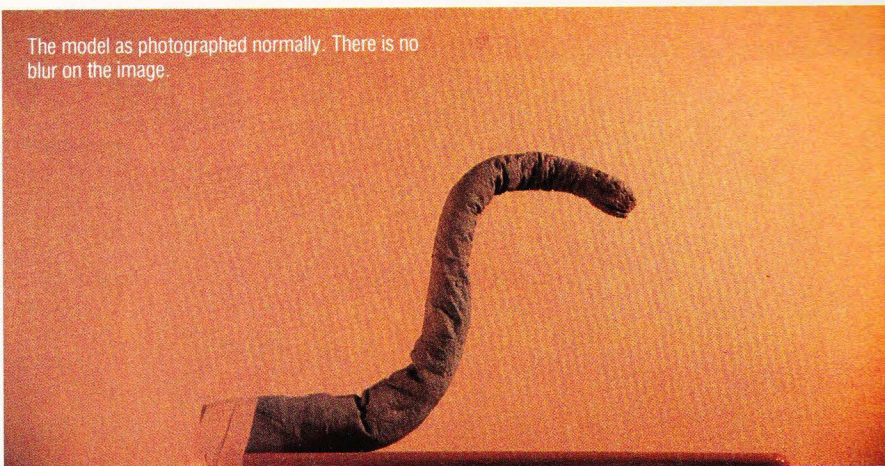
Since most Super-8 cameras do not allow backwinding, how can the Super-8 filmmaker double-expose a single frame? Well, there is a way. It would be tedious, and I haven’t tried it, but it might work. The requirements are a camera with manual exposure capability and a device such as the Craven Backwinder for re-winding film. Even with such a device, Super-8 cartridges cannot be rewound more than about a hundred frames; you must limit your shot to this length or less.

Mark a key frame on your film cartridge with a pen or a needle; you must be able to guarantee that this frame can be found later and aligned in the film gate. Load the cartridge into the camera with that frame in the gate and click off enough frames to get past the light-fogged area. If your camera lacks a frame counter, keep a record of every frame you expose, now and later. Animate the scene normally until you reach an action that requires a double-exposed frame. Make note of what frame that is. Stop down one *f*/stop and shoot the frame. Reposition the model. Then put the lens cap on the camera and click off as many frames as you will ultimately need to finish the shot; continue to keep track of the frame count. Remove the film from the camera; insert it into the backwinding device. These devices allow you to gauge with reasonable accuracy how many frames you have rewound. Rewind until you are at the beginning of the shot again. Remove the film from the backwinder and manually align the marked frame with the film gate once more. With the camera loaded and the lens cap still in place, advance the film until you have again reached the frame you wish to double-expose. Remove the lens cap and register the second exposure. Continue animating. If the next frame is to be another double exposure, repeat the process. If it is not, adjust the *f*/stop to normal.

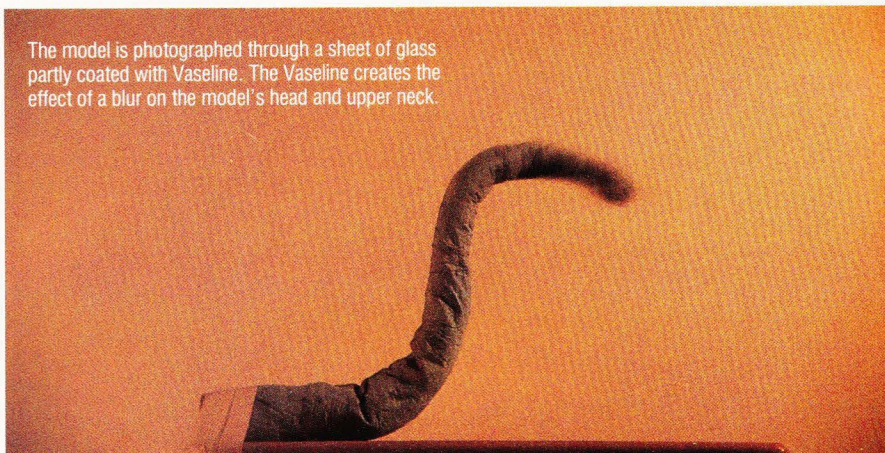
Well, I *told* you it’s tedious! The pitfall here, of course, is film registration; this will vary from camera to camera, and possibly, from sprocket hole to sprocket hole. But if you can do travelling mattes in Super 8—and you can—then you should be able to double-expose an individual frame if you are so inclined. But in most cases “selective diffusion,” as Danforth noted, will give better results—for a lot less effort.

Whether you use double-exposures or diffusion to beat strobing, the quality of your animation will be improved. It will look smoother, more lifelike, more realistic. And who knows? If enough of tomorrow’s animators learn to overcome the alleged deficiencies of stop-motion, all those critics might finally have to shut up.

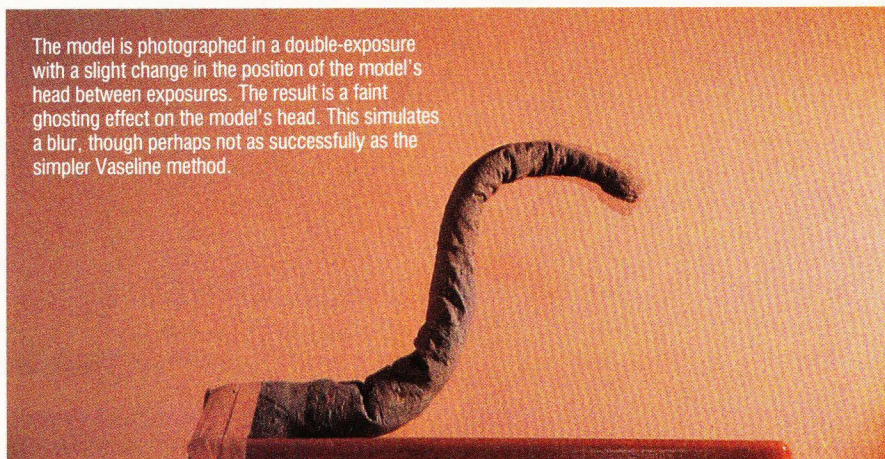
The model as photographed normally. There is no blur on the image.



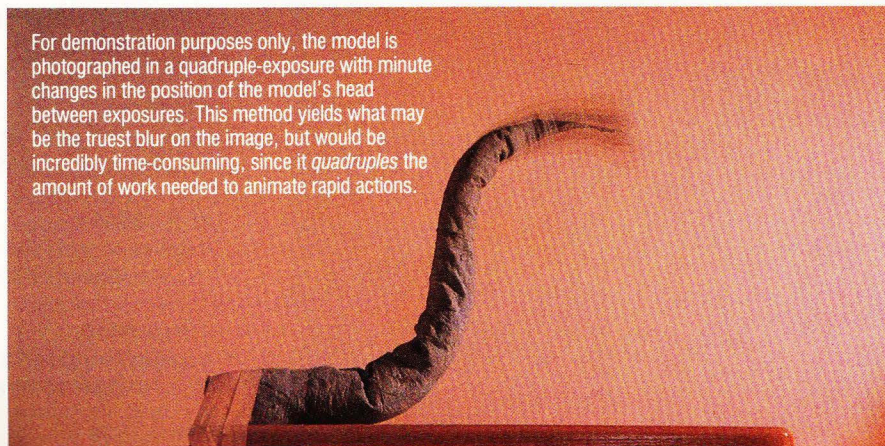
The model is photographed through a sheet of glass partly coated with Vaseline. The Vaseline creates the effect of a blur on the model’s head and upper neck.



The model is photographed in a double-exposure with a slight change in the position of the model’s head between exposures. The result is a faint ghosting effect on the model’s head. This simulates a blur, though perhaps not as successfully as the simpler Vaseline method.



For demonstration purposes only, the model is photographed in a quadruple-exposure with minute changes in the position of the model’s head between exposures. This method yields what may be the truest blur on the image, but would be incredibly time-consuming, since it *quadruples* the amount of work needed to animate rapid actions.





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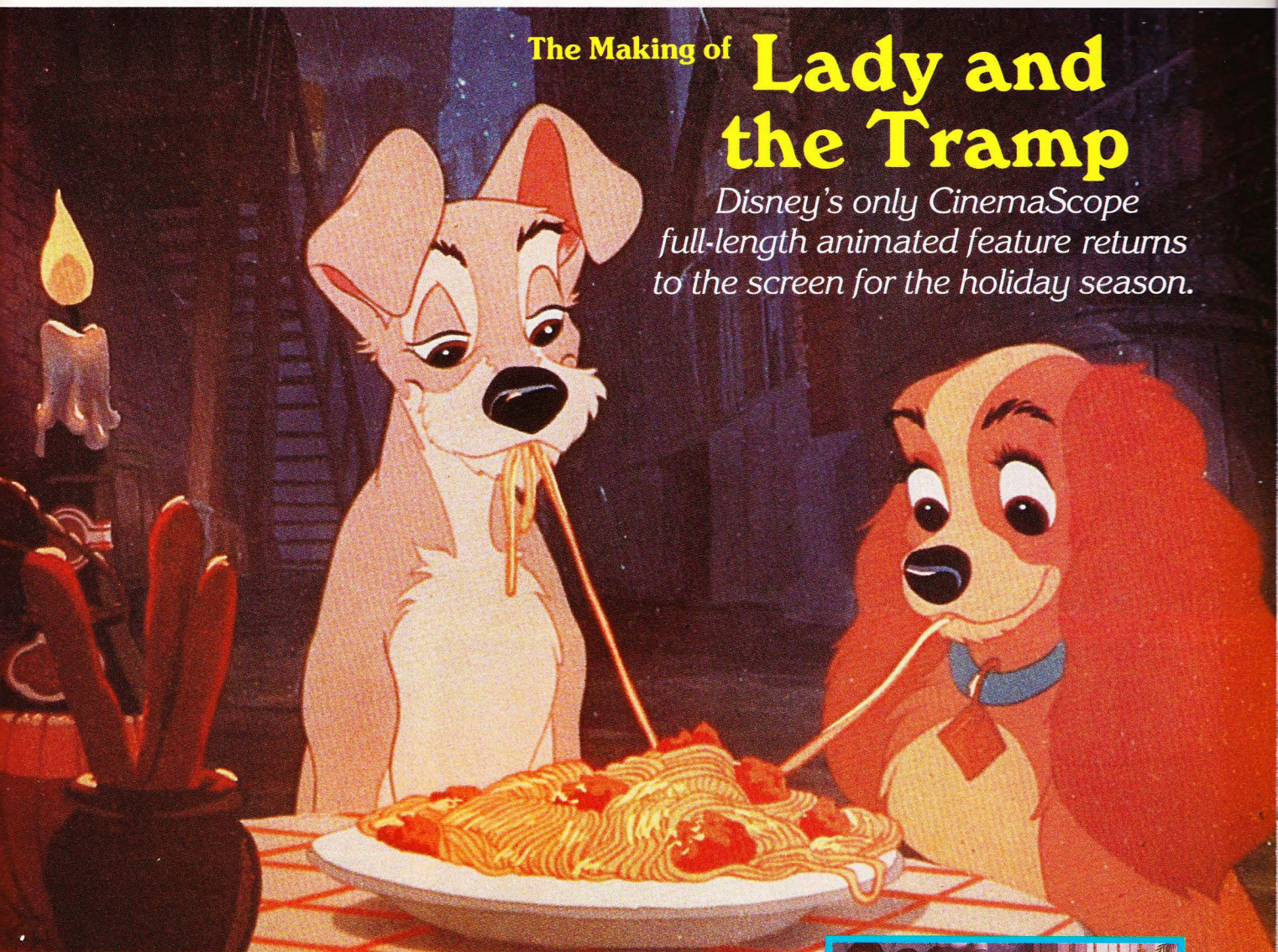
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The Making of

## Lady and the Tramp

Disney's only CinemaScope full-length animated feature returns to the screen for the holiday season.



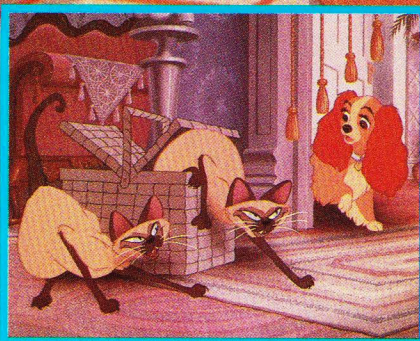
Tramp treats Lady to a night on the town starting off with a back alley candle-lit dinner for two behind Tony's Italian restaurant. Animator Frank Thomas faced the challenge of a romantic scene with two dogs eating spaghetti.

**F**or the 1955 production of *Lady and the Tramp*, Disney abandoned the practice of relying on famous children's classics (*Snow White*, *Pinocchio*, *Cinderella*, *Alice*, *Peter Pan*) as the basis for its animated features. Instead, Disney turned to Ward Greene's raffish short story, "Happy Dan, The Whistling Dog," the romantic adventure of a pedigreed cocker spaniel and a freedom-loving mongrel from the wrong side of the tracks. Though early story development began at the studio during World War II, it was not until 1951 that production began in earnest. It was completed four years later at a cost of \$4 million.

The decision to produce the film in the new wide screen process, CinemaScope, was in keeping with Walt Disney's fascination with new techniques and mediums.

Disney had pioneered the use of 3-strip Technicolor, the multi-plane camera and FantaSound to name a few of the studio's most famous technical innovations. Disney's live action film of Jules Verne's *20,000 Leagues Under the Sea* was among the very earliest of CinemaScope films to go into production.

Traditionally, animated and live action films had been shot using the standard Academy Aperture with a nearly square aspect ratio of 1.33:1. This had been the de facto standard since the days of Edison. But when the new electronic medium of television adopted this standard, the movies were forced to change. Producers turned to wide screens and stereophonic sound in attempt to recapture an audience that was staying at home to watch Milton Berle and Ed Sullivan on



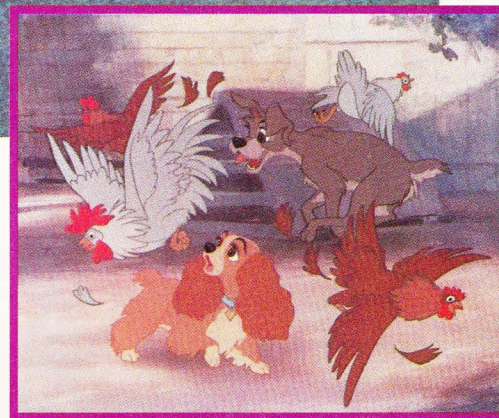
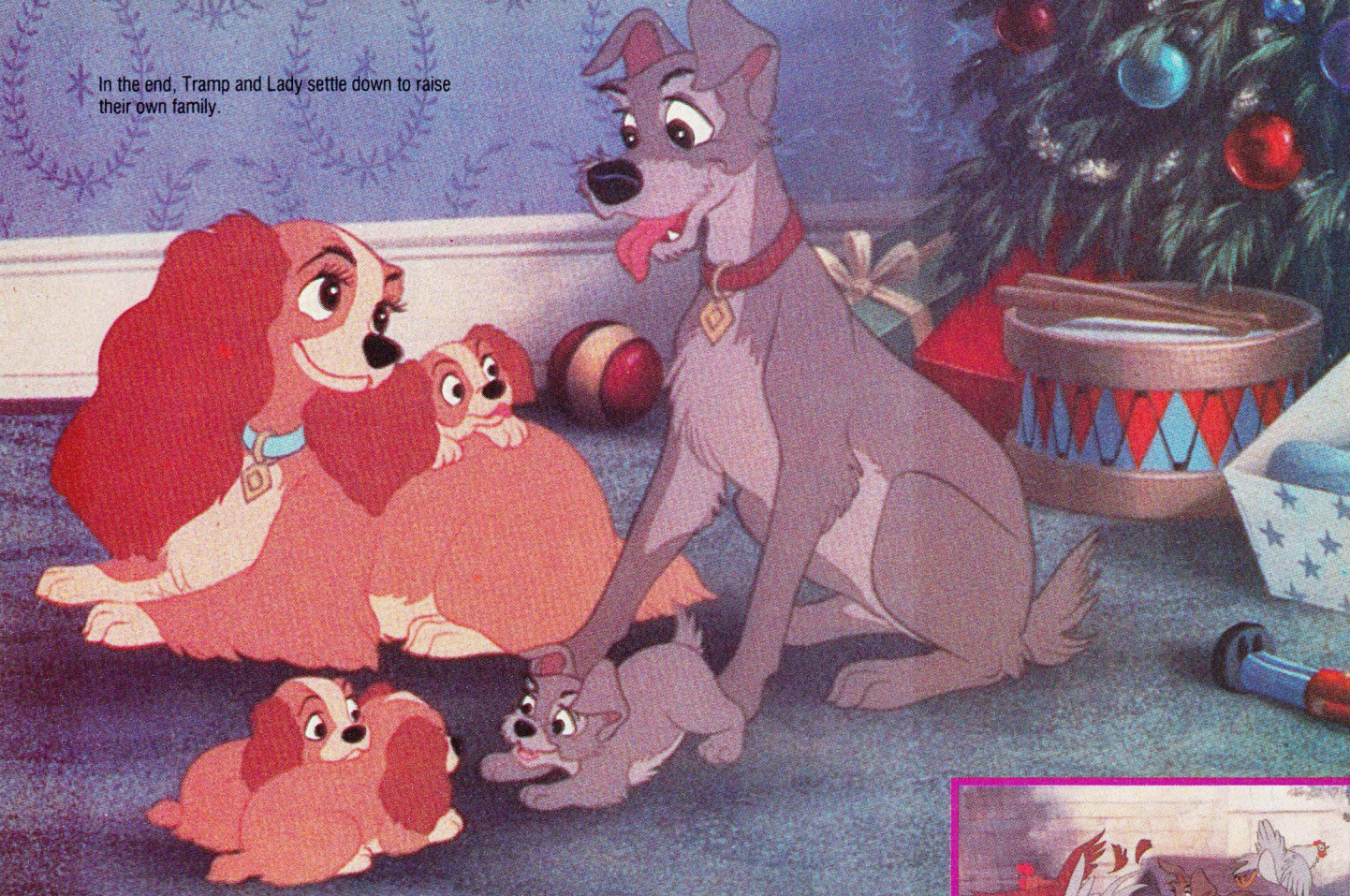
Aunt Sarah (voiced by Verna Felton) brings her two pampered, troublemaking pets into the home. When Lady tries to prevent them from stealing the baby's milk, Aunt Sarah thinks the dog is attacking her pets. She takes her to a pet store and has her muzzled.

black-and-white 19-inch screens.

For *Lady and the Tramp*, the use of this new widescreen process made new demands on the Disney artists, requiring not only larger paper and cels, but a whole new approach to layout and editing.



In the end, Tramp and Lady settle down to raise their own family.



After a romantic night on the town Tramp asks Lady to share his independent way of life, but she feels it is her duty to return home to look after Jim Dear and Darling's baby. On the way home he talks her into having a little bit of fun raiding a chicken coop.



Lady tries to keep Aunt Sarah's trouble-making cats under control, but, instead, she is blamed for their mischief.

Backgrounds had to be larger, some were up to 10-feet wide, and much more detailed. Animators found that individual scenes played longer in CinemaScope. Rapid cutting from character to character for reaction shots was abandoned. Instead, scenes were played out in full "master shots" rather than as a series of rapid cuts between different points of view.

Another departure for the Disney artists

was the setting for *Lady and the Tramp*. Instead of the traditional fantasy or fairy tale styling, the story was relatively contemporary and placed in an urban environment. The Disney artists created a very settled Victorian environment with soft, romantic backgrounds. Streets and houses took on a warm and very hazy nostalgic sheen. It was a picture postcard version of 1910.

The actual interiors of the period look incredibly cluttered to modern eyes. Floors were covered with patterned piles of Persian rugs. Walls were papered in intricate designs. Tassels, swags, ferns and fans were everywhere. All of this is seen through the eyes of the canine stars, usually from a very low angle. If the fussy mode of the day were too faithfully followed, the distractingly busy backgrounds would camouflage the characters. Instead, the look is simplified.

Nevertheless, the Disney artists still faced the problem of working with human settings seen from a dog's point of view—perhaps only a foot from the floor. Accordingly, Disney artists Claude Coats and Bruce Bushman evolved the use of small scale models for most scenes. By having the character of the rooms and furnishings worked out in scale models for everyone to study, background and layout artists were able to move pieces of inch-



size furniture around, planning scenes and painting perspectives that only a dog could see.

The main roles in *Lady and the Tramp* are 10 dogs, two Siamese cats and a beaver. The film's stars had real-life models. Lady's live counterpart was an appealing cocker spaniel named Blondie owned by Hamilton Luske, one of three directors on the film. The late Barbara Luddy, who was the voice of many a Disney character in such cartoon features as *Sleeping Beauty*, the *Winnie the Pooh* shorts and *Robin Hood* supplies her gentle voice for the well-bred Lady.

But for Tramp, the animators could not come to any agreement as to his breed. One day, associate producer Erdman Penner spotted a stray mutt not far from the studio that he liked, but the dog fled through yards and bushes eluding his pleading arms. Penner alerted the studio and soon everyone was watching the streets and sidewalks in search of Tramp. Days later, she (yes, the Tramp was a female) was finally discovered at the local pound within hours of being gassed. Actor-producer Larry Roberts lent his vocal talents to the cocky mongrel Tramp.

The heavies in the film are two Siamese cats named Si and Am, voiced by singer Peggy Lee. Miss Lee not only composed five of the songs for the picture with Sonny Burke, but she sings three of them and serves as the voice for four of the characters. In addition to Si and Am, they are: Darling, Lady's Mistress, and Peg, the faded Pekinese star of a dog and pony show that Lady meets in the dismal, decaying City Pound.

Animated by Eric Larson, Peg sings "He's a Tramp." As a character, her movements are believable, but the animation is not strictly realistic. Since Peg has to sing and perform, the limitations of a real dog's anatomy were relaxed. Most cartoon animals are parodies of human actions, but in *Lady and the Tramp*, the animators wanted the characters to be believable as animals. Hence, the animation is much more restricted to what a dog can really do.

Remarkably, the Disney artists managed to retain the romantic styling even in the gritty reality of the City Pound. It must have been very difficult to keep a light touch in a sequence where giant human figures drag doomed dogs off to die. Animator Cliff Nordberg trod a careful line of gallows humor as the dog, Nutsy, "walks the last mile" to the gas chamber. Amazingly, a truly horrifying event is still watchable.

The film is extraordinarily adult in the other ways, too. Perhaps the most famous sequence in the film involves a night out on the town. Tramp takes Lady to dinner at Tony's Italian restaurant. He leads Lady around to the back kitchen door where he is accustomed to begging for a free meal. But this time Tony notices that Tramp has a lovely girl friend with him and orders his



A quartet of impounded dogs voice their frustrations with a sad chorus of "Home Sweet Home," as their fellow inmates are led off one by one to the gas chamber. Lending their voices to the howling foursome are The Mello Men: baritone Bill Lee (second from left) is Bull, the English bull dog; second tenor Max Smith is Toughy, a mongrel; Bob Stevens is Pedro, the chihuahua; and bass Thurl Ravenscroft (far right) is Boris, the Russian wolfhound.

cook, Joe, not to serve up bones for the two dogs, but the specialty of the house—spaghetti and meatballs. During dinner, Tony (animated by John Lounsberry) serenades the dogs ("Bella Notte") accompanied on his accordion, while Joe plays the mandolin.

The first problem facing the animators was how to keep Lady attractive and upper class, while eating spaghetti. Such a scene would be difficult even with human actors, but, here, the dogs don't even have the convenience of knives and forks. The sequence is character animation and acting at its best. Every thought, every feeling is clearly, logically and evocatively expressed. A romantic mood is sustained, the dogs eat spaghetti with better table manners than most humans (animation by Frank Thomas) and, wonder of wonders, the story doesn't grind to a halt for the song. We watch the dogs fall in love during the scene.

*Lady and the Tramp* was directed by Hamilton Luske, Clyde Geronimi and Wilfred Jackson. Directing animators were Milt Kahl, Frank Thomas, John Lounsberry, Wolfgang Reitherman, Eric Larson, Hal King and Les Clark. The screen story was written by Erdman Penner, Joe Rinaldi, Ralph Wright and Don Da Gradi.

Tramp was rescued from the City Pound by Ed Penner shortly before she was scheduled to be destroyed. Cast as the model for the alley-roving mongrel in *Lady and the Tramp*, she visits cameraman John Nelson and watches an animated scene being shot.





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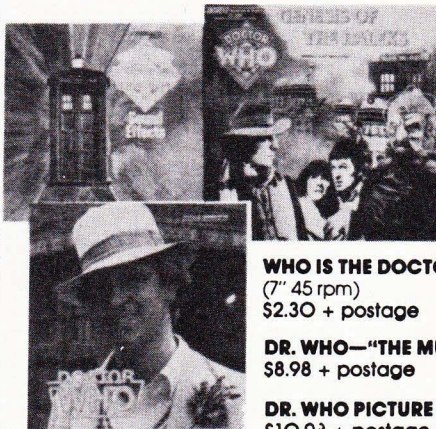
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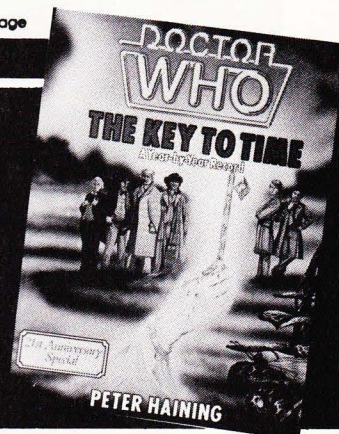
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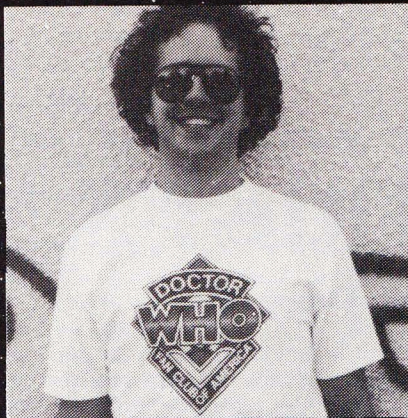
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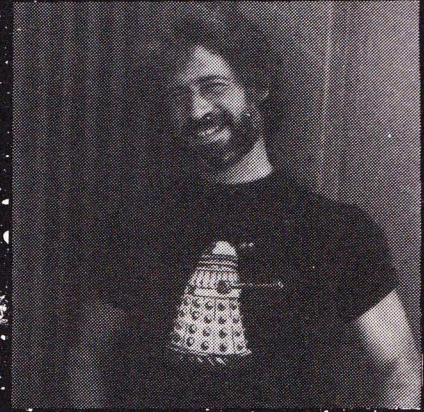
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# Mirror Magic for Title FX

## Secrets of the Beam-Splitter: Part 1

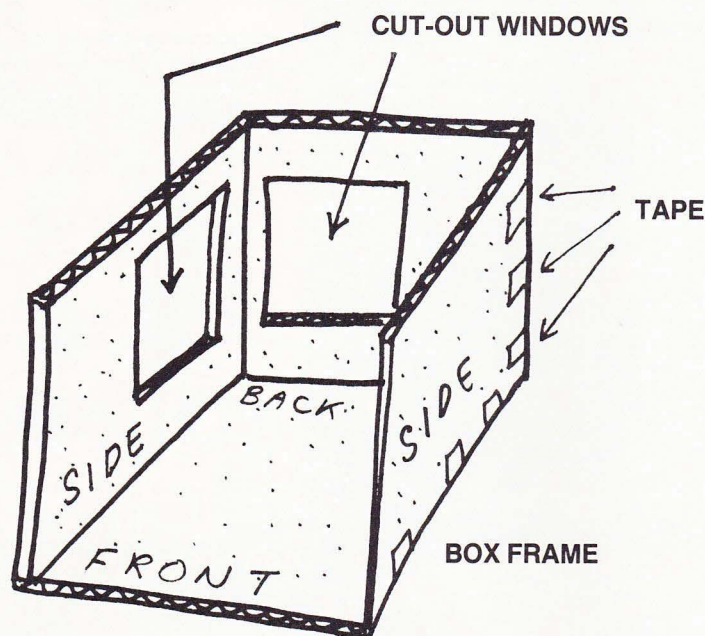
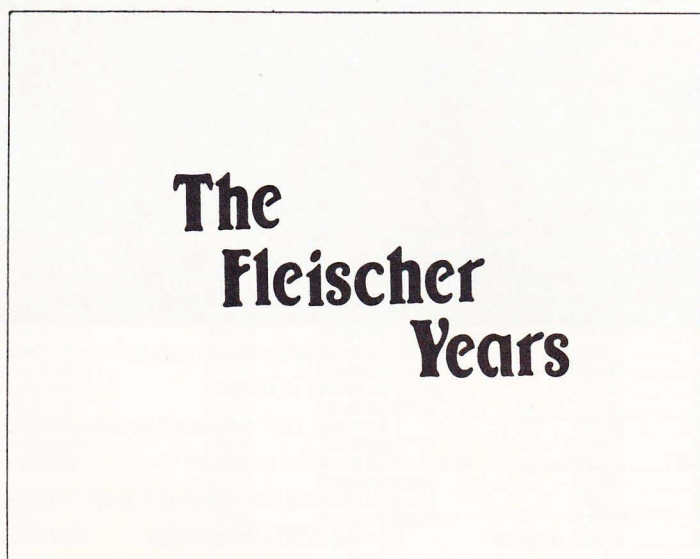


FIGURE 1



**TITLE MASTER**  
Black letters on a clear sheet.

FIGURE 2

**T**ired of static, amateurish looking titles detracting from the look of your otherwise glitzy films? Transform your ordinary titles into something special by using the amazing beam-splitter mirror. This simple handmade tool (see CINEMAGIC #32 for details) can be used to create color effects and animated opticals as you film (or shoot video) black-and-white titles. That's right, you can apply in-camera special effects even to your film titles! In this installment, you'll learn how you can manipulate colors in a title, and how to do animated effects such as "gleams" and textures. Next time, I'll show you how to create the travelling highlight effect, known as "glints" or "candy apple" lettering. It's all easy, if you have a beam-splitter.

The mirror is an 8×10-inch beam-splitter (also called a ghost mirror or "50/50" mirror). For this project you can use the homemade mirror described in the CINEMAGIC #32 E-Z Effects, "Ghostly Glass Shots". In brief, the beam-splitter mirror is made by applying mirror-like plastic window film to a sheet of ordinary 8×10-inch picture glass. Refer to the previous article for construction details.

A simple frame for the mirror and title artwork sheets is made from a few sheets of ordinary cardboard. You can, of course, use better materials if you want a more permanent frame, but cardboard is fine and quite durable. Figure 1 shows the frame shape. Note that two windows are cut out in two walls of the box. These windows measure 5×5 inches and are precisely one inch from the seam between them. Keeping the two windows the same distance will help later.

The windows are then covered with a sheet of glass or clear plastic. Ordinary 5×7-inch picture frame glass will do well enough, this standard size will avoid the need for special glass cutting. This will provide a firm, flat support for the flimsy title sheets to come. Use strong tape to attach the glass sheets to the outside surface of the cardboard.

Insert the mirror in the box and position it midway between the two windows, at a 45-degree angle. The mirror's reflective surface faces the front of the box frame. Use tape along



the bottom edge of mirror to anchor it in position, and along the edge where the glass fits into the box frame corner.

### Making Titles

You can make your title sheet by applying "dry transfer letters" to a sheet of clear plastic, such as a thin report cover from an office supply store. You can get the lettering there too. Transfer letters are sold as sheets with several full alphabets so there should be plenty for most titles. To apply lettering to the plastic sheet, simply place the alphabet letter against the plastic sheet and rub the backside of the transfer sheet with a blunt pencil or edge of a spoon. The letter will come off its backing sheet and adhere to the clear sheet. Use lined paper under the clear sheet to aid you in keeping the separate letters straight across. When you have completed making all your letter transfers, you will end up with black letters on a clear background. This sheet is your "title master" sheet. Keep your title centered in a 4×5-inch area, as shown in Figure 2.

The next step is to take your title master to a local printer and have a negative made. Some photo stores may do this, but printing companies are your best source. The title master is to be "contact-printed on 4×5-inch, high-contrast Kodalith graphic arts film." This will produce a negative the exact size as your (positive) title master sheet. We will call this the "title matte." This step will cost about four dollars, but you can save money if you have several titles printed at once on a larger single sheet and then mask them with black paper or black tape. If you have a dark-room, you can contact print your own title mattes onto 4×5-inch sheets of Kodalith film, available in most camera stores. A title matte can be seen in Figure 3.

You will need some color filters (or gels) which can be easily made from colored see-through report covers (office supply store). You can trim these sheets to be 6-inch squares to fit the box frame windows. Covers come in several colors, so get a variety for experimenting with color combinations.

A special mask will be needed for "gleam" effects across strips of letters. This mask is nothing more than a ¼-inch slot cut six inches across an 8×10-inch sheet of stiff black paper. The mask is shown in Figure 4.

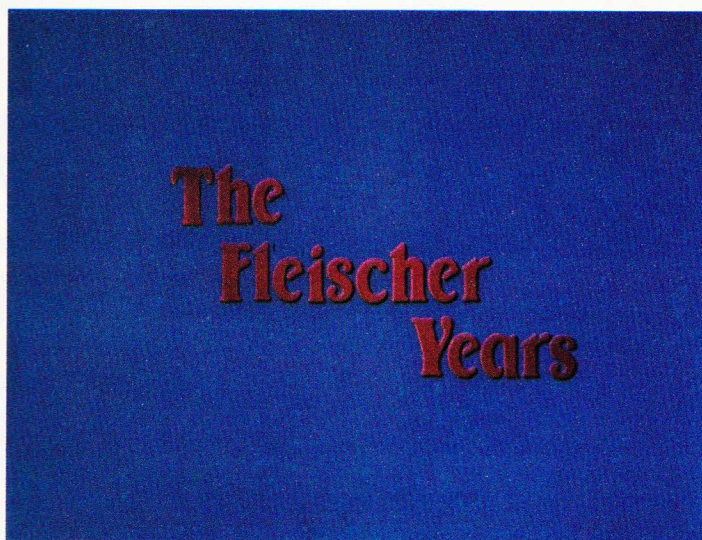
### Setting Up

Figure 5 shows the basic set-up for the lighting and camera. Each light is aimed into a box window to backlight the title sheet that will be mounted there. The camera is placed at the box front, aimed at the box window. The use of a macro lens or closeup lens adapters (or even a good telephoto setting) will enable you to fill the entire image frame

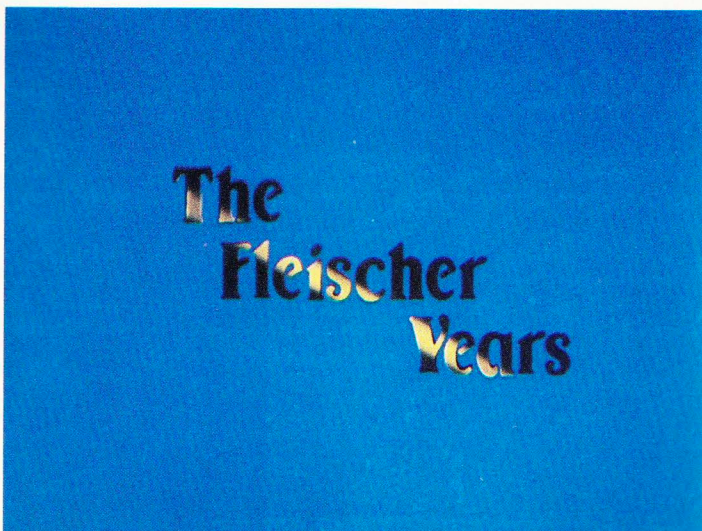
# The Fleischer Years

**TITLE MATTE**  
Kodalith negative.

**FIGURE 3**



Color title effect with the E-Z Effects beam splitter.



Animated title effect with the same beam splitter unit.



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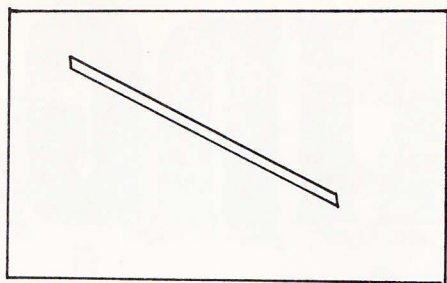
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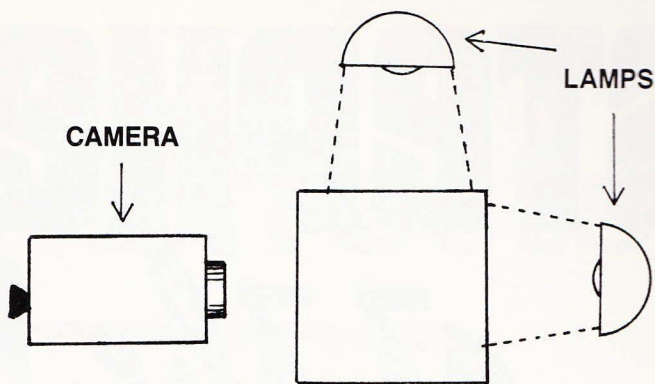
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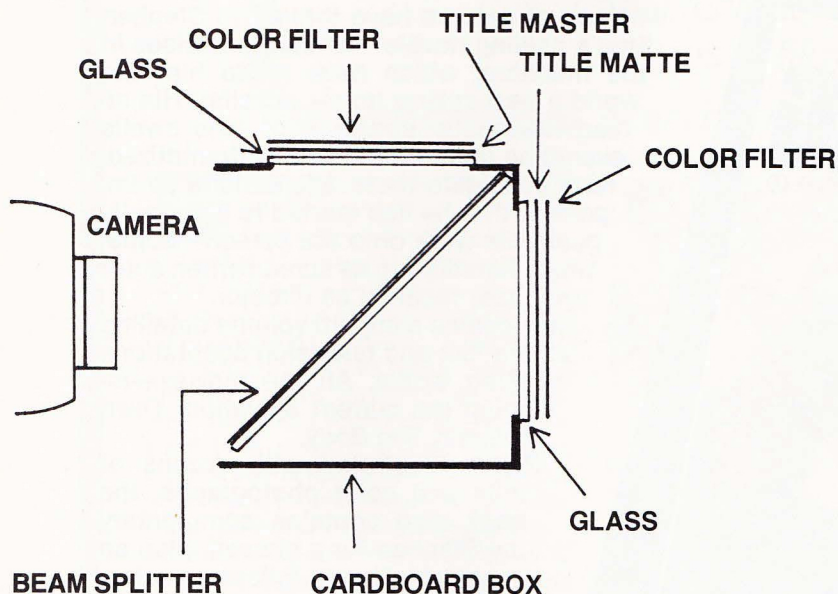




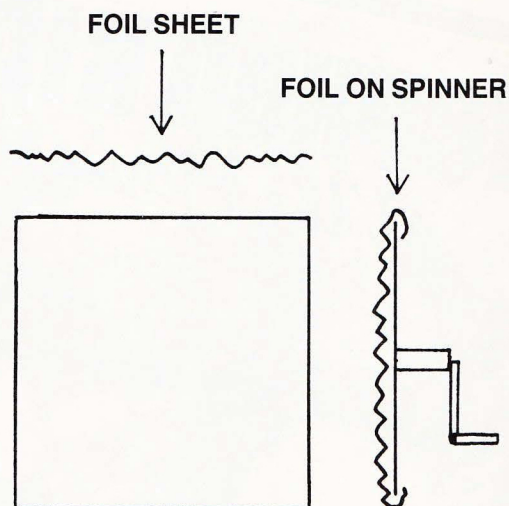
**SLOT MASK**  
**FIGURE 4**



**TOP VIEW**  
**FIGURE 5**



**TOP VIEW**  
**FIGURE 6**



**TOP VIEW**  
**FIGURE 7**

with the window. Do not shine the light directly into the lens, but rather use a thin piece of paper taped to the window glass as you set-up the lighting. Use only low-power lamps, in the 25 to 40 watt range for video, around 100 for slower films like Ektachrome 160. Use a "spot-light" reading for in-camera meters (or manually reduce setting 1 to 1½ stops to avoid overexposing the titles.)

### Optical Line-Up

To properly get the elements all lined up for photography, use the following steps:

1) Lightly tape the title matte sheet to the back window of the box frame. Turn on the backlighting lamp. When you see the title from the camera viewpoint, the title should read normally and be centered in the image frame. Make adjustments as needed. Once this is right, then use a few more pieces of tape to anchor the sheet in place.

2) Lightly tape the title master sheet to the side window, but flipped, so that it is reversed. This will be righted in the beam-splitter, which produces a mirror

reflection that reads correctly. Turn on the side backlighting lamp. Now, with the assistance of a cameraperson or by looking edgewise into the open front of the frame, adjust to the position of the title master sheet. You will see *two* images in the beam splitter, the title master sheet optically overlapping the title matte sheet. This sounds confusing, but adjust the title master sheet (the side window sheet) until it exactly overlaps the other title sheet. This will produce, from the camera viewpoint, a single black image with no title at all! When this is done, tape the side window title master securely in place.

3) Now it's time for the magic part. Tape a color filter over the back window, and a different color filter over the side window. Figure 6 shows the arrangement of all the elements. When you look into the camera viewfinder, you will discover that the black-and-white title is now in color, the color letters superimposed on a color background. You can even change colors independently of the other color. Because the beam-splitter is optically combining

two separate sources of images, you can create a wide variety of effects on the letters without affecting the background color.

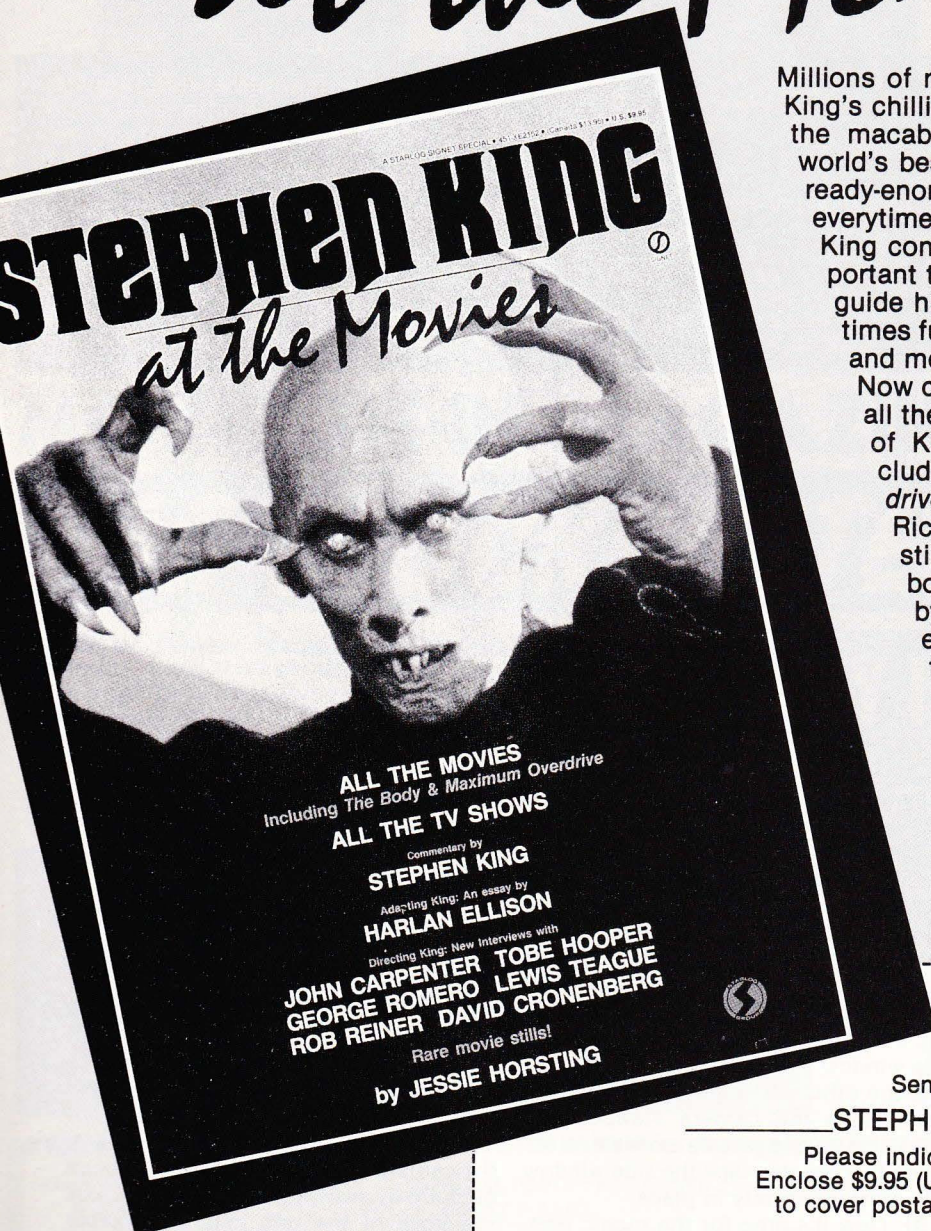
### Gleam Effect

To add an animated light flash across the title letters, simply slide the slot mask diagonal cut-out across the back of the title matte. The mask will block out portions of the letters as it moves across the sheet. You will be able to see the "gleam" only on the letters and not the background when you look through the camera. Variations of this effect can be done by sweeping a flashlight across the back of the title matte, to create brilliant "flash or burst" letters. Another trick is to use crinkled aluminum foil behind the title matte, to add metallic texture to your letters. Figure 7 shows a better version with aluminum foil: put foil on a spinner (see CINEMAGIC #22 for the spinner project.) Aluminum foil, also crinkled, is used for the side window too. The combination of still and moving textures within the title image is very impressive in the finished shot. 



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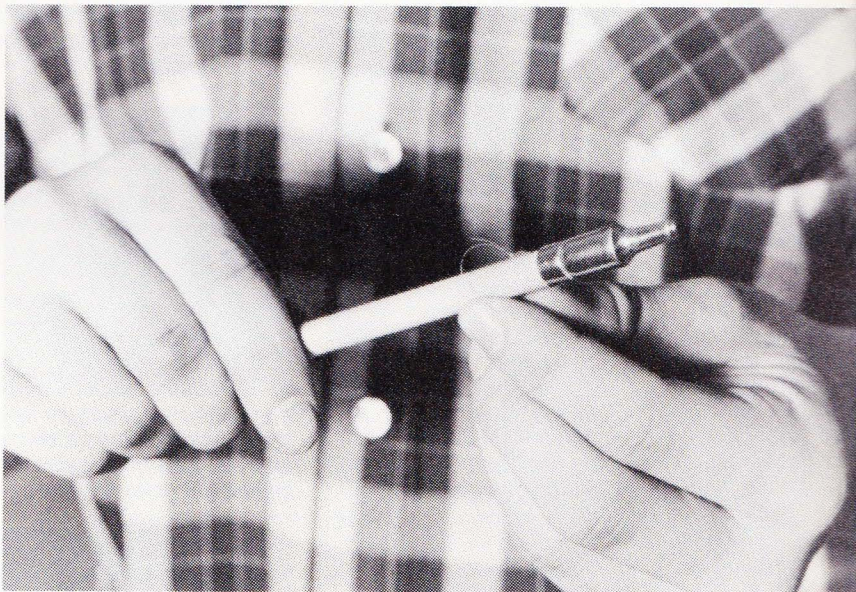
By RALPH LANGER

**W**e have all seen countless violent deaths in the movies, but one method of dispatching a person makes for an especially touching death scene: being shot by an arrow. It's more dramatic than the more standard death by gunshot wound because it's so graphically gruesome, and it has many more uses than the obvious "cowboys and indians" and "sword and sorcery" applications. Used in a modern setting, it's more creative than simply pulling out a shotgun and blowing someone's face off, and it can leave just as lasting of an impression—while it saves you wheelbarrels full of money on special makeup effects and stage blood. Remember the "death by arrow" scene in *Deliverance*? Of course you do. Ever ask yourself, "How can I do that?" Well, here's how.

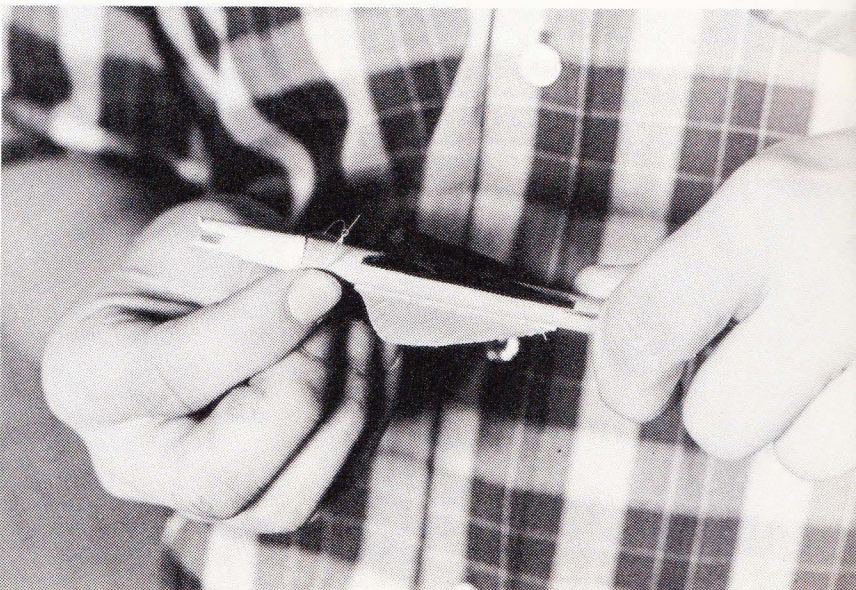
The script for *School Daze*—a North Hills High School (Pittsburg, PA) student production—called for an arrow to shoot through a note that a student was holding, past a teacher's face, and into a bulletin board. We had to devise a safe way to show this effect.

The first idea was to stick the arrow into the bulletin board, then yank it out by pulling a thin fishing line cord tied to the end of the arrow. When filmed in reverse, it would look like the arrow was shot into the bulletin board. If a camera with a reverse function is not available, reverse filming can be done by filming the effect with the camera upside down. When the film is processed, remove the upside down footage, flip it, and resplice it into the movie. [see CINEMAGIC #8, "Going Backwards Made Easy."] The shot will be right side up but everything will move backwards.

Along with movement, the room, props, and everything else will be reversed, as though looking at the shot in a mirror. Do not have words or signs in the shot unless they are reversed to begin with. Also, the film emulsion will be on the

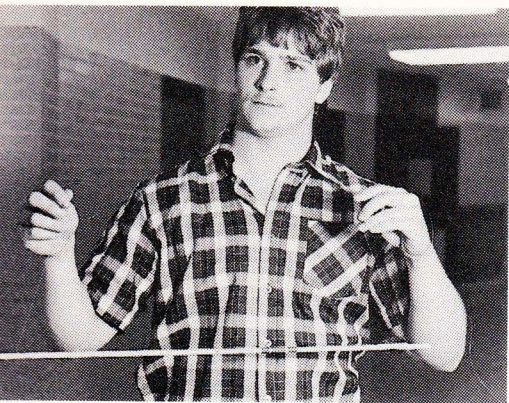


Fishing line is tied into a loop and taped to the *tip* of the arrow. Small screw eyelets can be screwed into the arrow in place of this loop.

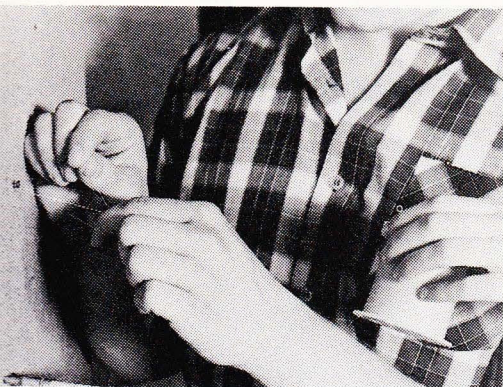


Fishing line is tied into a loop and taped to the *end* of the arrow. Small screw eyelets can be screwed into the arrow in place of this loop.

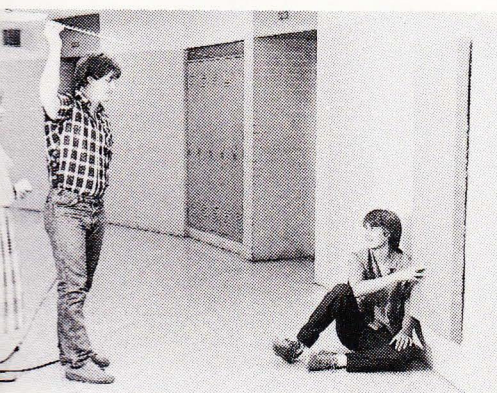




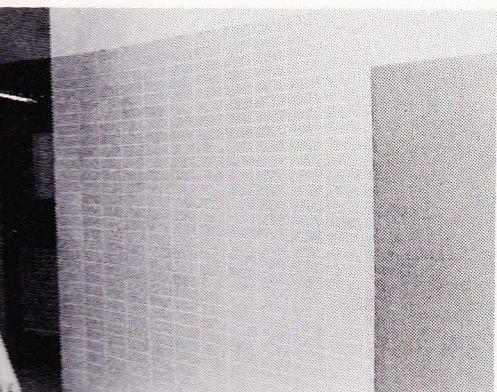
A long piece of fishing line is threaded through the two loops on the arrow creating a "cable car" line for the arrow to travel along.



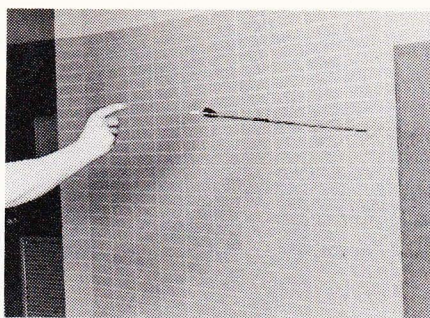
A nail is put into a bulletin board and the "cable car" wire of fishing line is attached to the nail.



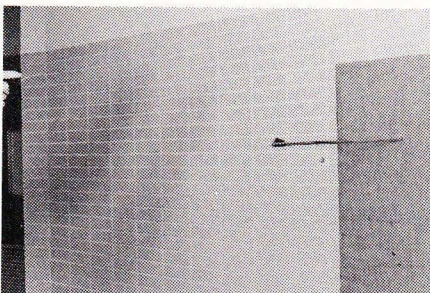
The fishing line is pulled taut and the arrow is shuttled along the fishing line like sailing a paper airplane. If lit properly, it will look like it was shot from a bow from the camera's point of view.



This is the path the arrow will take when filmed. The person gliding the arrow will be farther away from the target during the actual take.



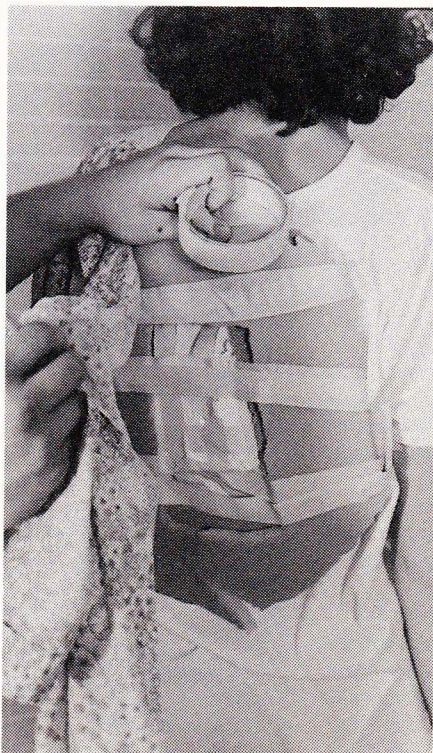
This is the path of the arrow in flight.



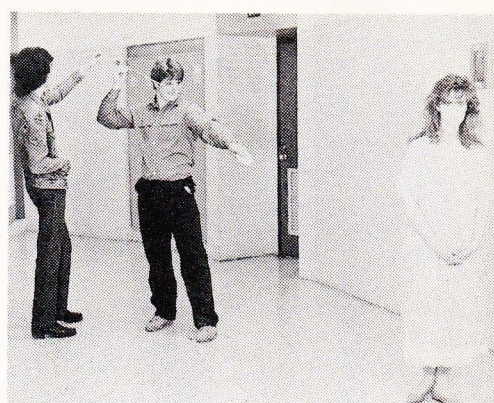
This is the path of the arrow as it makes contact with the bulletin board.



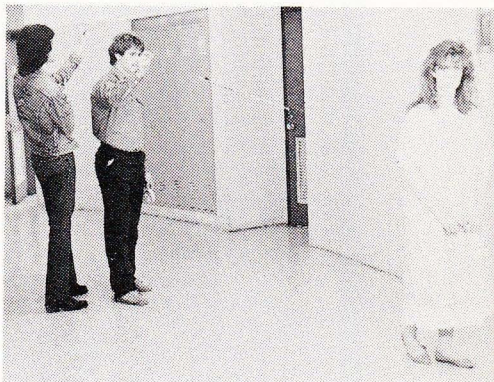
The actress is being rigged with a protective metal backing, styrafoam for the arrow to penetrate, and foam padding so the actress does not "bulge" from the back of her dress with this rig.



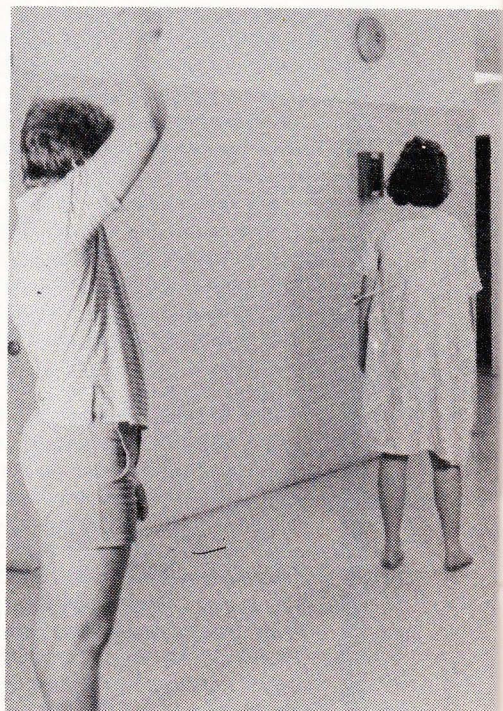
A close-up view of the stunt body rigging.



Do not fire the arrow from a bow. Slide the arrow down the "cable line."



This method allows you to capture the movement of the arrow in flight as it heads towards the victim.



The victim safely receives the shaft of the arrow.

flip side, which can cause problems with a slight focus shift and the sound striping not sticking on the shot if the shot is to be sent for sound striping. If sound stock is being used, the soundstrip will be on the wrong side of the shot and sound will not be recorded on this area. Liquid sound striping is the only solution to get sound



onto this reversed, flipped shot.

A second, better idea for shooting an arrow was developed by Chris Martin and Matt Matessa, members of the film class at North Hills High. It's very much like the Hollywood method, except Hollywood uses a hollow tube for the arrow and runs the line directly through the tube.

**Step 1**—A length of fishing line tied to a small nail embedded into the "target." This line is pulled taut.

**Step 2**—Fishing line loops are tied around the arrow at both the tip and the feather end.

**Step 3**—The taut fishing line is threaded through the two loops around the arrow. The arrow can now be sailed along the fishing line cord like a paper airplane.

This is the basic set up for all arrow shots. Next, the illusion of the arrow shooting over an actor's shoulder and through a note he was holding had to be devised for the scene in the student production, *School Daze*. The taut fishing line was threaded through the note. Then the arrow was threaded onto the taut fishing line. The actor sat in a chair and held the edges of the note that was impaled on the fishing line.

The cameras rolled and the arrow was sailed along the fishing line from off camera. The camera saw the arrow come over the actor's shoulder through the note and off camera. The note was pulled from the actor's fingers and left the frame with the arrow. The lighting was adjusted until the fishing line appeared invisible from the camera's perspective. Avoid front lighting; this makes the fishing line appear as a white line.

**CAUTION:** Do not recklessly throw the arrow along the fishing line. If the fishing line snaps, the arrow can do damage. Lightly glide the arrow through its paces and be careful. We at North Hills have never had a problem with this effect, but please attempt the arrow effect only at your own risk. Be careful.

The next shot in *School Daze* showed the arrow with the attached note gliding past a teacher and into a bulletin board. When the two shots were edited together, the result was quite effective.

### Moving Targets

When *It's Not Just for Ice Cream Anymore* (another North Hills High production, which won second place in the Super-8 category of the 1985 CINEMAGIC Short Film Search) was filmed, this technique came in handy again. However, this time a moving arrow was shot into a moving actress as she was running.

**Step 1**—A 1/16-inch copper metal plate was taped to the actress's back using surgical tape. A very small hole was drilled into the metal. The fishing line was tied onto a bobbie pin and threaded through the small hole.

**Step 2**—The fishing line was threaded through a flat one-inch piece of styrofoam. The styrofoam was taped on top of the metal plate so the fishing line

appeared to come out from the center of the styrofoam.

**Step 3**—Foam rubber padding was placed around the styrofoam so it would not bulge through the actress' sweater (Note: a balloon filled with fake blood made from Karo Syrup and red food coloring could also be embedded into the styrofoam where the arrow will hit. However, we did not do this for our effect). [See Dick Smith's blood formula in CINEMAGIC #2.] The title, *It's Not Just for Ice Cream Anymore*, referred to chocolate syrup, which we used for blood in this black & white film.

**Step 4**—The fishing line was threaded through an old sweater. It now looked as though the thin fishing line was coming from the actress's back. In reality, the fishing line was attached through the sweater, through styrofoam, to the metal backing. For the shot, the arrow slid along the fishing line and through her sweater, sticking into the styrofoam. The metal plate kept the arrow from injuring the actress. When this scene was filmed, the arrow was not rammed toward the actress with such force that the metal plate was even needed. Of course, it's better to play it safe for an effect such as this.

**Step 5**—The arrow was threaded onto the line. For the scene in *It's Not Just for Ice Cream Anymore*, the actress ran screen right away from the camera. A crew member held the fishing line that was attached to the actress's back taut from off screen. He reeled out more fishing line as the actress ran farther from him, keeping it taut. Also off screen, a second crew member glided the arrow along the wire to the actress's back as she ran. When the arrow stuck into the styrofoam, the actress fell forward to the ground. Again, the lighting had to be arranged so that the fishing line did not register on the film. It takes a bit of time to set up the lighting so the fishing line is not recorded on the film.

Always be prepared for out-takes when the arrow does not stick into the styrofoam as it should. The students averaged four out-takes for every good take of this scene.

**CAUTION:** Never shoot an arrow from a bow along the fishing line into the actor. The force would be such that the fishing line might break, thus seriously injuring the actor. This effect is designed to be done by hand, sailing the arrow gently along the fishing line. If a shot of a person shooting an arrow from a bow (safely into an off-screen target) is edited into the film just before this arrow-effect, the result on screen is very realistic.

Use every safety precaution when creating this effect and do it at your own risk. We have never had a problem with this effect, but our motto at the North Hills High School film production class is Murphy's Law, "If anything can go wrong, it will, and at the worst possible time." So play it safe, and have fun "shooting" this effect.

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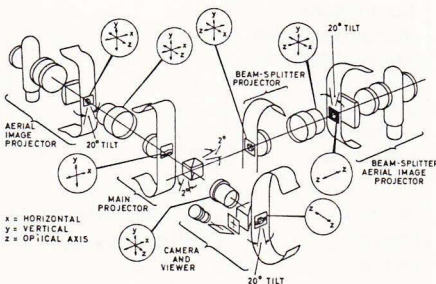


# BOOKS



**The Technique of Special Effects Cinematography, (4th Edition), By Raymond Fielding. Published by Focal Press, London, Boston; 442 pages. \$24.95.**

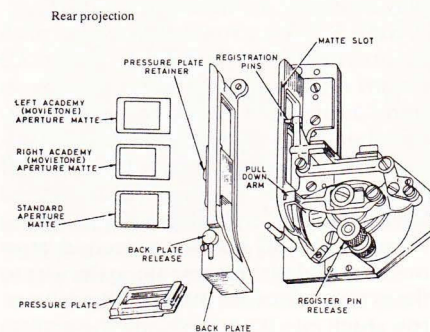
If you were a teenager in 1965, smitten by the special effects bug, you tip-toed into the reference section of the biggest library in your town and spent hours immersed in a book called *The Technique of Special Effects Cinematography*, written by Dr. Raymond Fielding of the University of Iowa. It was done in black & white and looked very much



like a college textbook. *Everything* (well, almost everything) you ever wanted to know on the subject was in there, and you read it with the kind of reverence one would otherwise reserve for the Old and New Testament.

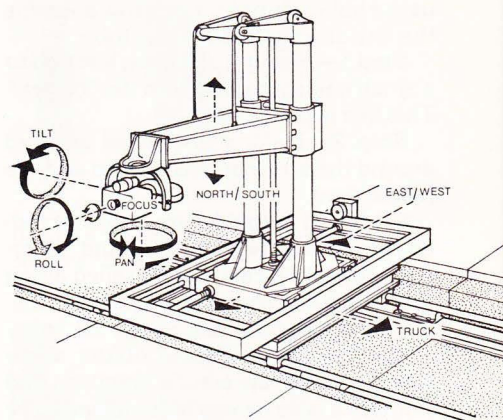
There it was, a book with detailed descriptions of travelling mattes, miniatures, rear projection, optical printing. You couldn't remove it from the library and you couldn't find it in a bookstore. It explained blue screen, sodium screen, infrared and ultra-violet matting techniques. It had pictures of printers, process cameras, clips from vintage movies and trick television commercials. If you never knew what in hell a "diapositive glass shot" was, Fielding filled you in.

Chances are it was too complicated to absorb—this was an industry textbook on special effects describing methodologies that went beyond the limitations of your 8mm Keystone or Sankyo 8Z movie camera. But the book's existence was enough to excite you. Without question, it got many filmmakers going who are now in the business. Times have changed—esoteric techniques are no longer arcane—but it's important to realize that the magazine you're holding in your hands wouldn't be if not for the route Dr. Fielding had plied a generation ago.



The fourth edition of this Focal Press book has been revised and updated. Though the layout and typography looks almost identical to the original, changes have been made in nearly all sections. (After all, look how the effects industry has changed since *Star Wars*!) There's a new chapter on motion control, electronic image compositors and computer systems, an expanded bibliography, and over 130 new B&W illustrations. An added color section consists mostly of ILM production shots and elements, and the artists in some of the photos (Phil Tippett, Paul Huston, Doug Beswick) are not credited in the captions. In one shot of the snow walkers, Fielding explains the "laser blast streaks" as an optical enhancement which, in the example shown, is nothing more than air-brushed photo doctored. Bruce Nicholson's last name (on page 216) is misspelled as "Nickelson." Sorry, Bruce. Mark Hamill becomes "Hammel" in the color plates. Sorry, Mark. So much for nitpicking.

Dr. Fielding has done an admirable job in updating this book. His recent position as special effects supervisor at Zoetrope points to the inclusion of some interesting material from Coppola's *One From The Heart*, and contributions from the Disney Studio have aided Fielding in explaining/illustrating the ACES motion control system used in *The Black Hole*.



A roundie-roundie support for a glass-painted spaceship provides a nice touch to the "glass shot" section. The chapter on miniatures is expanded with revealing photos taken during the production of *Earthquake* and *The Hindenburg*. Front projection techniques are better illustrated with new material from Pinewood Studios in England. There is a satisfactory explanation of the Zoptic "simulated dolly" system used in the *Superman* movies. But again, the lingo is strictly for professionals and serious students of special effects.

Fielding's description of blue screen is the same as it was in the original pressing. He retains his explanation of producing a moving silhouette matte—a bi-pack of a blue separation positive with a red separation negative, duped onto hi-contrast stock—which although technically correct, does not conform to modern practices. (See my blue screen piece in CINEMAGIC #33 which hopefully is less confusing, though far be it for me to pit my knowledge against Fielding's expertise.) The old sequence of blue screen printing steps showing an unidentified Gary Cooper matted over a sunset makes its fourth appearance, which has always been frustrating without color. It's nice to see it again, if only for nostalgia's sake.

One interesting anecdote Fielding relates in that regard concerns a blue screen shot made of Julie Andrews for the film *Star*. A mysterious matte line surrounded her face which could not be removed by any known remedy. Weeks later, it was discovered that a make-up man had put a light film of baby oil on Ms. Andrews' face which had been picking up the blue screen! Even the experts can be "color blind."

Though the book boasts a description of "every photographic special effect used throughout the world," puppet animation and the work of Ray Harryhausen is (and always has been) curiously excluded from the text. Why on Earth does this subject get short shrift? It almost seems that Dynamation, the "low-tech" process of animating figurines against rear-projected backgrounds, and split-screening them into those backgrounds, is still in a world of its own. Fielding's only mention of stop-motion as "expensive, time-consuming, and nearly always jerky" is a rather sad commentary on



the magic that Harryhausen and his disciples have given us over the years. One wishes that Dr. Fielding could have been less myopic this time around.

That notwithstanding, *The Technique of Special Effects Cinematography* continues to reign as a Bible to all practitioners of the art. Paper costs have risen astronomically over the last two decades, and connoisseurs of this book might find themselves yearning for the less murky B&W reproductions on the old enameled stock, and even the smell of the ink. But we're nitpicking again. Despite the update, the nostalgic pictures hark back to the power of the original printing. Norman Dawn's turn-of-the-century glass shots. The trick effects for *In Old Chicago*. Tony Randall and Burl Ives in color separations from the unidentified *Brass Bottle*. A young, anonymous Jim Danforth sprinkling Fuller's earth on a miniature set at UCLA. A girl sitting on a flagpole in a front-projection shot. A scarecrow illustrating the old infrared matting process.

The bibliography of articles and papers has always been a valuable reference for historians. That, too, has been updated. It's rewarding to see the names of contemporary effects reporters (myself included) in that section. To be part of this book, even in a minimal way, closes the circle of pouring over it in the quietude of that library reference room years ago.

My dog-eared copy of Fielding's book cost \$15 in 1968. Almost twenty years later, the new version goes for \$24.95. Quite a bargain, I'd say.

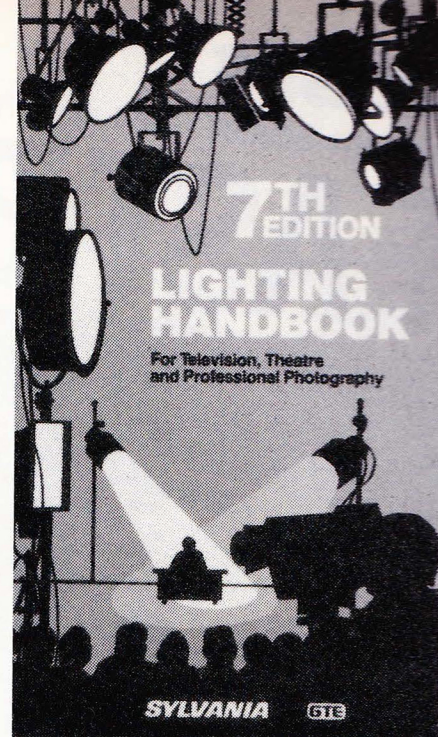
—Paul Mandell

## PUBLISHERS' ANNOUNCEMENTS

**Professional Lighting Handbook**, by Verne and Sylvia E. Carlson. This is an excellent resource for technical lighting information, primarily for film and video. It includes valuable research on the use of color-correcting gels for exotic light sources, prepared by producer/camerman David Quaid. Published by Butterworth Publishers (Focal Press) at \$25.95, 80 Montvale Avenue, Stoneham, MA 02180.

**7th Edition Sylvania Lighting Handbook**. This authoritative paperback guide has been an industry standard for decades. Lists lamp specifications, lighting instrument types and uses for television, theatre and photography—all for the ultra-bargain price of \$1.25 (this includes postage and handling). Order directly from: 7th Edition Sylvania Lighting Handbook, Dept. LH7, c/o GTE Marketing Services Center, 70 Empire Drive, West Seneca, NY 14224.

**Trick Cinematography—The Oscar Special-Effects Movies** by R.M. Hayes, \$25.95, hardback, 1986. Exhaustive production and cast credits from all Academy Award-nominated special-effects movies from 1929 through 1984, including release dates, shooting locations, running times, photographic processes and sound systems. The history of the special-effects award is presented along with the problems or triumphs of each film. All scientific, technical,



and special achievement awards are fully detailed, winners and also-rans. Coverage includes, just for example, *Star Wars*, *Raiders of the Lost Ark*, *Gone with the Wind*, *E.T.*, *Close Encounters*, *King Kong* and *Superman*. Author R.M. Hays has worked in films and television for a number of years as film editor, set technician, 3-D technical advisor and film reviewer. Published by McFarland & Company, Inc., Box 611, Jefferson, NC 28640.

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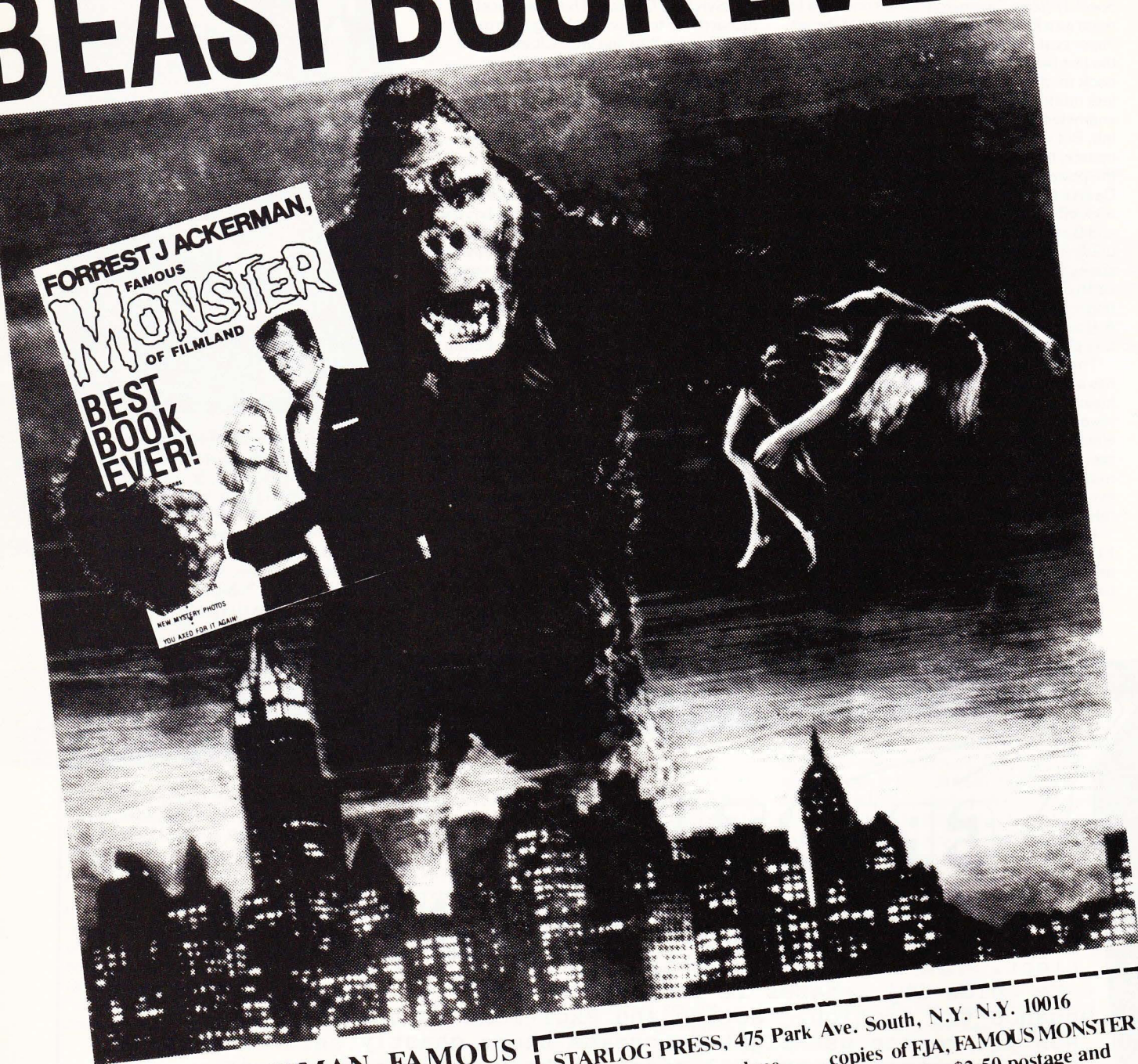
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# FESTIVAL NEWS

## Santa Barbara

*The Later Keaton* will be featured at the Santa Barbara International Film Festival March 4-8, 1987 and will give audiences an opportunity to view a half-hour TV pilot Keaton co-starred in with Ernie Kovacs called "Medicine Man." It never became a series because of Kovacs' untimely death. Also included will be two cameo performances by Keaton on "The Donna Reed Show."

*Keaton Laughs*, a collection of his "classic shorts," will be another highlight of the Festival. After almost 50 years, the release of *Keaton Laughs* reaffirms his genius with "Mooching Through Georgia," "Pardon My Berth Marks" (1939) and "Pest from the West" (1940) as part of the collection.

The commentator for this treasure-trove of Keaton films will be Dr. Charles Wolfe who is currently teaching a course on Keaton as part of the Film Studies Program of University of California, Santa Barbara.

## Ann Arbor 8mm

The Ann Arbor Film Cooperative and Eye-mediae proudly present the 17th annual Ann Arbor 8mm Film Festival designed to encourage creative activity in the field of 8mm film production. Our festival is the oldest and largest of its kind in the United States.

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have been originally shot in an 8mm format (regular 8 or Super 8). Films with poor splicing or other defects will not be accepted.

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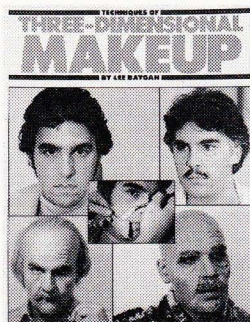
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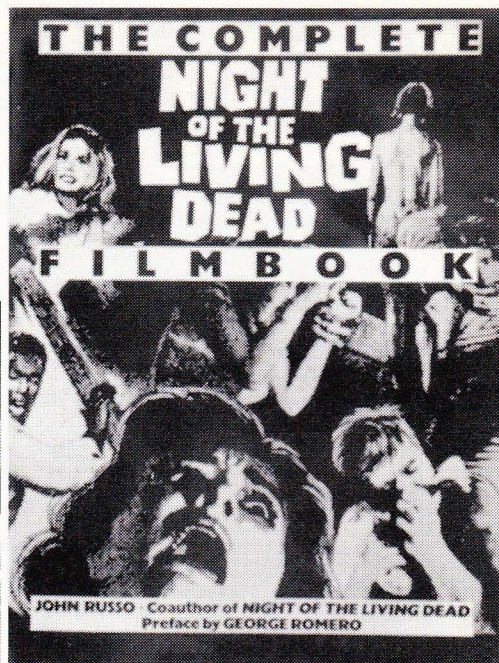


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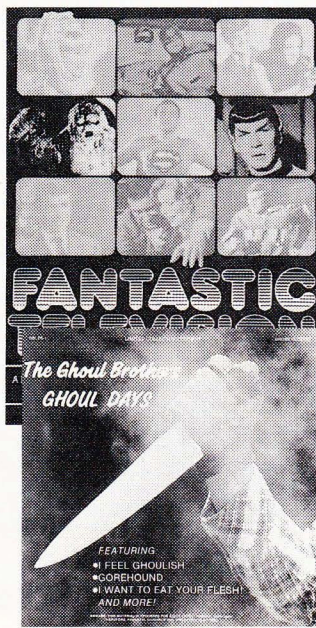
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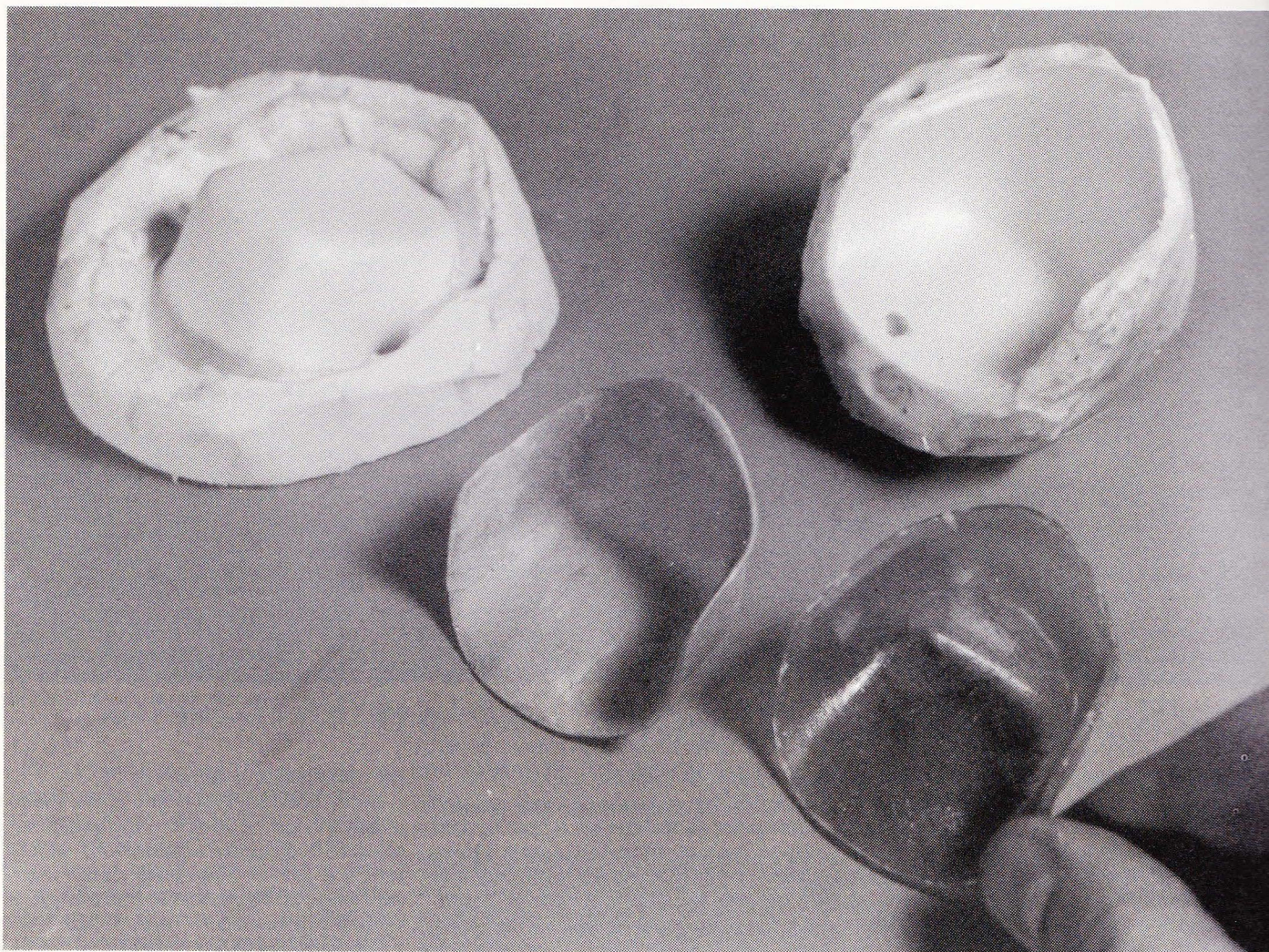
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# Making Molds With Silicone RTV Rubber

By KENNETH WALKER



The two-piece RTV rubber mold is shown next to the original carved wooden chair, and its polyester resin/glass cloth cast duplicate. The "flash" along the edge of the casting has been filed and sanded smooth. Making multiple hard copies of an object is easy with an RTV mold. The flaw in the mold surface could have been repaired by simply pouring some more rubber into the hole; RTV rubber sticks to itself.

**A**s much as I enjoy creating scratch-built models, the work itself is quite taxing and time consuming—especially when having to hand-carve a part that cannot be made any other way. And of course, that often fragile original carving is a one-of-a-kind creation, the only reminder of many long, aching hours of work. But it doesn't have to be!

For a model I recently completed of one of the "Main Battery Disintegrators" from the film, *Forbidden Planet*, I had to create (in miniature and from scratch) a tiny one-inch-high, futuristic-styled chair, incorporating all the gracefully flowing lines of the original full-size prop. My finished reproduction was extremely thin, fragile, painstakingly carved from a block of balsa wood and finished with a smoothly

sanded coat of modeling putty.

Although I had long harbored a desire to build several identical copies of this disintegrator model, for myself, for friends and collectors, the thought of hand-carving each and every one of those chairs individually was enough to make me feel like dropping the whole idea. One was enough!

For sanity's sake, the reproduction of the chair *en masse* in a harder and stronger material, was something I began to seriously consider.

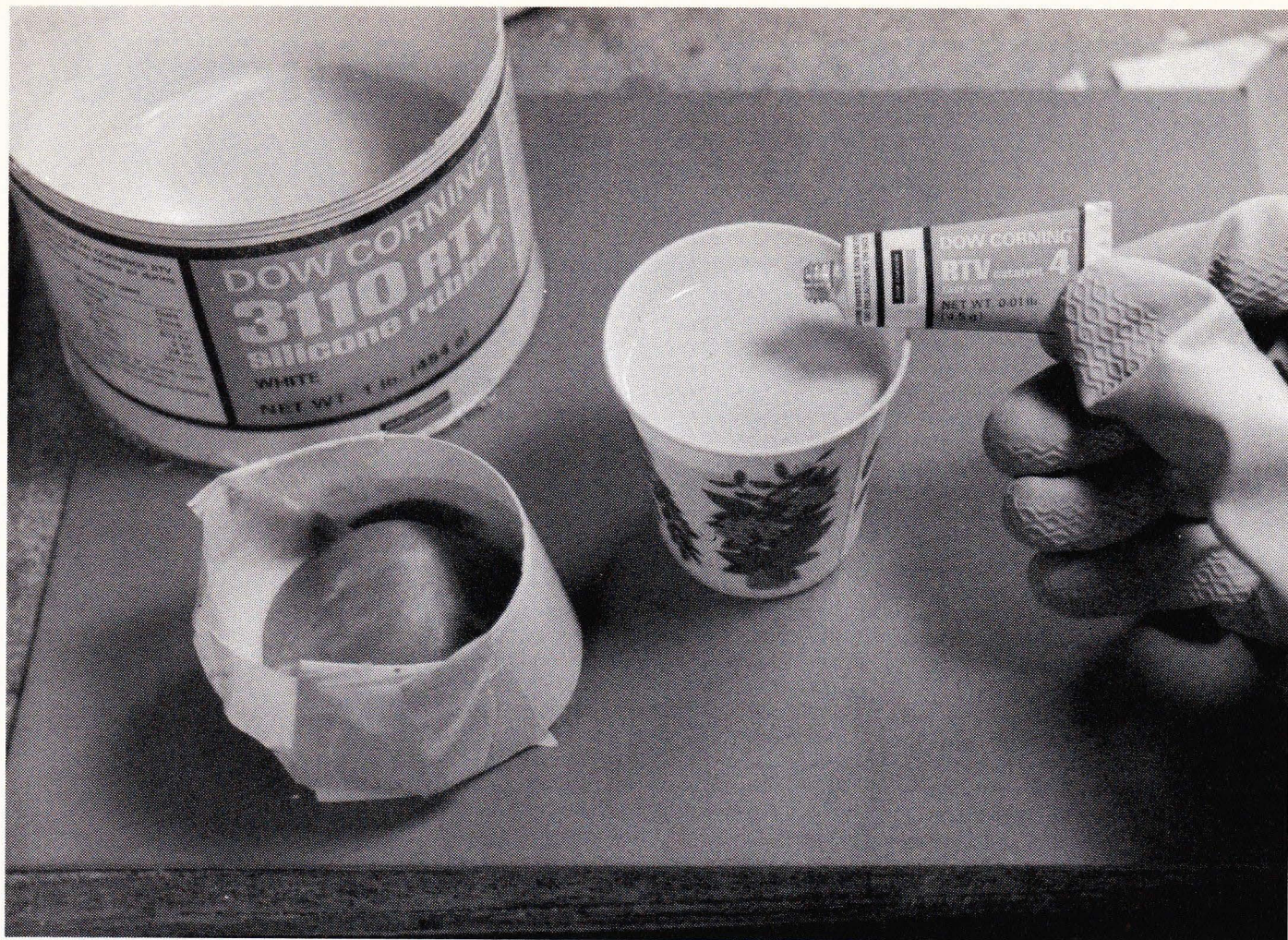
The question arose: *How* could I easily make a number of copies of this gracefully shaped object, each one faithful to the original chair carving, yet more durable? Vacu-forming in sheet plastic was a possibility, but the chair was not all one thickness; the resulting copy simply

wouldn't look like the original.

There was another way: by using a *mold*, of course! Once made, the mold could be used to cast additional—and much stronger—versions in fiberglass. Nothing new here; Hollywood had been using such techniques for many years. But what type of mold?

Molds can be hard, or they can be soft and pliable. Hard plaster and fiberglass molds are the ones usually seen in the pages of CINEMAGIC. Normal plaster or one of its offshoots—probably the most readily available and easily used of mold-making materials—is quite handy for making molds of clay sculptures, and for turning out slush cast latex monster masks and other soft copies of an object. Plaster absorbs some of the moisture in the latex, helping the mask to dry. Be-





A 3-ounce paper Dixie cup is used for measuring and mixing the rubber. Here the "quick-cure" catalyst #4 is being added to the base rubber. Protective gloves are a must when working with this catalyst. The rubber will cure (harden) in about 30 minutes.

sides, it's relatively inexpensive.

A clay sculpture would simply peel out of a dried plaster mold; but as is evidenced by my carved model chair, soft clay isn't always the material of choice for making an original object or *pattern*.

Consider what would happen if you were to make a plaster mold of a hard object with lots of indents and undercut areas. Since the original *isn't* of clay, wax or other soft material, how could you remove the hard mold from it without breaking one or the other? Never mind subsequent copies—both the original pattern and the mold would likely be destroyed beyond repair.

My own balsawood chair was at most 3/32 of an inch thick in places; some of the edges even tapered down to paper thinness with slight undercuts. If a cast copy of such an object were to be successfully pulled from a simple two or three piece mold the mold would have to be soft and pliable, made of something that could be peeled away from both pattern and casting without ripping or tearing in the process. Otherwise, my original chair carving encased in a hard mold would likely become a very labor-intensive paperweight on my worktable, forever fused together. I didn't want that!

Finding a pliable moldmaking material

was a must. But what to use?

My first thought naturally went to using liquid latex itself. After all, it's not limited just to making monster masks. I even went so far as to run an experiment—not on my original chair, of course, but on identical test materials, wood covered with "Squadron Green" modeling putty—to make sure I would not later run into any sneaky little incompatibility problems between model and rubber. Well, the latex in direct contact with the putty didn't dry.

This could have been due to several things. I had used castor oil as a mold separator between the latex and puttied wood, a definite mistake. (The castor oil seeped into the wood and putty, creating quite a mess.) But the real problem was probably as simple as my failure to let the very first coat of brushed-on latex dry, before subsequent coats were applied.

Latex forms a skin as it dries, causing any still-liquid rubber underneath to dry more slowly (unless the latex is in contact with a naturally absorbent plaster mold.) If the skinned latex is recoated while still drying, that first coat will remain slightly wet for some time, effectively "sealed in" against the pattern. The result is an unusable, tacky rubber mold, with the all-important surface detail all but obliterated when

the mold is finally removed.

In my opinion, this is one of the main disadvantages of latex as a moldmaking rubber. It dries by *evaporation*, which takes a lot of time and can mean shrinkage of the mold. On this project, I wanted and needed the cast duplicates of my carved chair to be *precisely* accurate to the original; the fidelity of later models would depend on it. And I didn't want to spend endless time brushing on coat after coat of latex and waiting for them to dry. I needed a moldmaking material that would *not* depend on evaporation in order to cure.

I could also look forward to another problem cropping up. For the latex mold to not only dry but cure properly, it would have to be baked later at low oven temperatures (I'll explain why in a moment.) Either I would have to chance removing the dried latex mold from my chair first (possibly distorting the mold) or I would have to bake the mold while it still surrounded my original carving. I wasn't fond of either alternative. There had to be a better way!

I began doing some detective work and discovered that it's quite a jungle out there when it comes to specialized pliable moldmaking materials; but I was able to uncover several products with practically



ideal characteristics that would make the molding of hard objects a breeze!

I decided to turn to one of the silicone RTV rubber moldmaking materials on the industrial market, specifically Dow Corning #3110. Why did I choose this particular product? I was aware of "silicone rubber" being used for moldmaking among professional modelmakers in Hollywood, and I had heard that it cured or "vulcanized" at room temperature (hence the acronym RTV, for Room Temperature Vulcanizing); that it reproduced fantastic detail; and that it was inherently slippery and would not need a heavy application of mold release when casting an object.

These are, of course, ideal features for any moldmaking material to have; but I had also unfortunately heard that silicone rubber is expensive. Nevertheless, I decided to track down a sales outlet for this "magic rubber." Much to my surprise, it turned out to be a rather elusive product to locate. Headings like "moldmaking materials" or "silicone rubbers" were not to be found in the Yellow Pages.

Only after half a dozen phone calls to various statewide plastics and rubber suppliers did I finally find someone who knew about these products, a research chemist at Dupont Inc.—and this in New Jersey, a state known for its overabundance of chemical producers! The chemist took the time to explain in great detail the nature of such materials, in effect telling me that there are all sorts of RTV rubbers on the market—literally hundreds—some silicone-based, some not, and each with a semi-specific function and chemical makeup.

For example, Smooth-On, a material mentioned in these pages from time to time (see CINEMAGIC #31) for making inflatable bladders and synthetic skin, is a non-silicone based, polyurethane elastomer RTV rubber with somewhat similar properties to silicone RTV, and can be used for moldmaking; but Smooth-On has a reputation for being a bit difficult to work with. It is a 2 to 3 part system, along with temperature restrictions and ratios that apparently must be strictly adhered to.

All I wanted was a general, two-part, pliable silicone moldmaking material that was easy to use, so the research chemist put me onto a supplier in New Jersey of Dow Corning's brand of silicone RTV rubber, the Robert McKeown Company (99 Dorsa Avenue, Livingston, NJ 07039.)

Upon describing my proposed application of this type of rubber, I was told by the sales representative that Dow Corning #3110 and its catalyst would be the materials to use. I wasted no time in ordering that stuff, and asked for all the available technical literature I could get, on this and on the Dow Corning "Silastic" brands.

Although there are other suitable RTV rubbers to use (such as "Adrub," described later), I prefer the Dow Corning #3110 silicone type for making molds of

solid objects. It does not shrink while curing (technically, it shrinks less than one half of one percent, which is quite imperceptible on small objects.) Secondly, although silicone rubber moldmaking materials are two-part systems (like epoxy resin)—a *base*, and a *catalyst* or hardener—Dow Corning's type is quite easy to work with: #3110 rubber does NOT have a critical mixing ratio! It captures *amazing* detail (more on that later) and it cures without evaporation and without the application of external heat. Being silicone-based, it is inherently slippery when cured. In fact, my experience is that simple cast shapes made from polyester resin pop right out of the mold (although as subsequent copies continue to be turned out, a repeated coating of some kind of mold release is recommended.)

These molds are also very resistant to wear. RTV rubber molds are used industrially to turn out many, many identical copies of parts; in fact, certain silicone RTV rubbers can even be used to make castings from molten metal!

With all of these advantages, the one that I think is *the* most important and most useful—even elegant!—is that RTV moldmaking rubber is applied to an object or pattern all at once. It is literally poured over the pattern, and it cures as one big block, "from within" as it were. In other words, it doesn't air-cure by evaporation, it cures or polymerizes *chemically*, all at the same time. Making a mold four inches thick is as simple as making one a sixteenth-of-an-inch thick!

Surely, you might think, there must be at least one "trick" to using #3110 silicone

RTV rubber—and there is. *Temperature* is important to the *quick* curing of this RTV. The lowest temperature it will cure at normally is a relatively high 73 degrees F. Any cooler and the curing process slows down.

That can be an added bonus, though. #3110 used along with its normal catalyst has a fascinating property: Its curing time can be greatly increased by refrigerating the mixed but still-liquid rubber!

As a practical application, for example, perhaps you've mixed too much rubber for the particular job at hand. Rather than throw it away (an expensive alternative) you can simply store it in the freezer for up to five days, until you're ready to use the remainder. To cure properly, though, it must be allowed to return to room temperature.

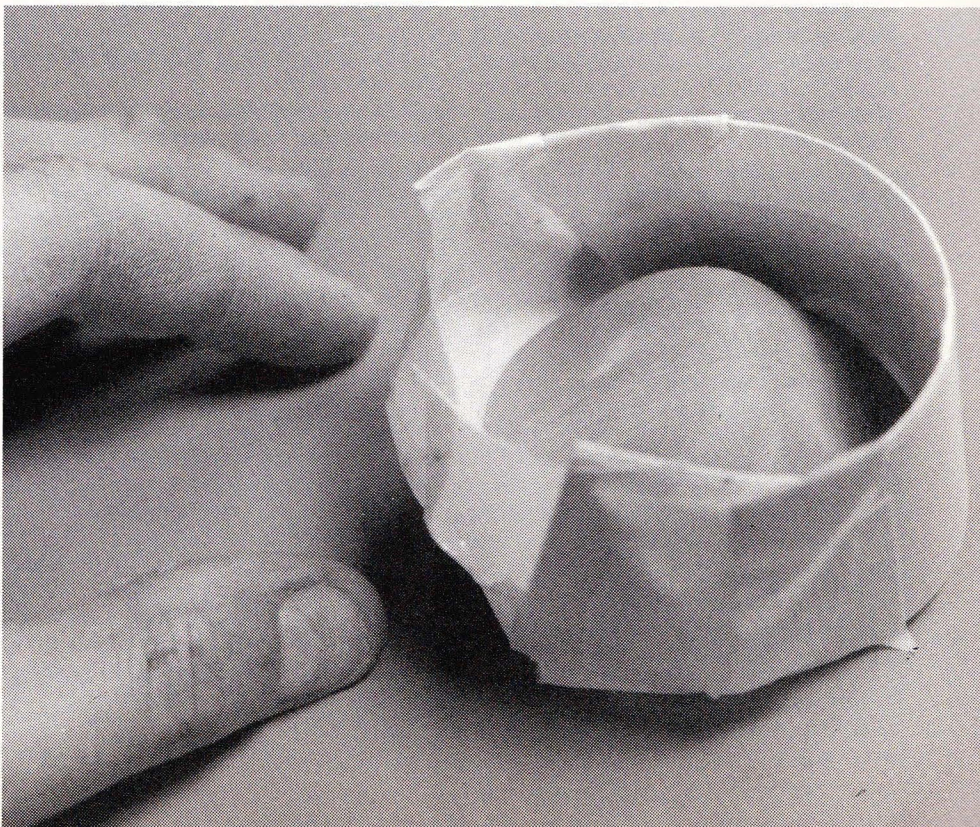
Since the curing of the rubber does begin to slow down when it's cooled, pouring a mold around a large, intricate object becomes that much easier, without having to "beat the clock" before the rubber hardens.

As mentioned, the one drawback to using silicone RTV rubber is its relative expense. A one-pound pint container with catalyst costs about \$17. Compared to that, liquid latex (which needs no catalyst, of course) is dirt cheap.

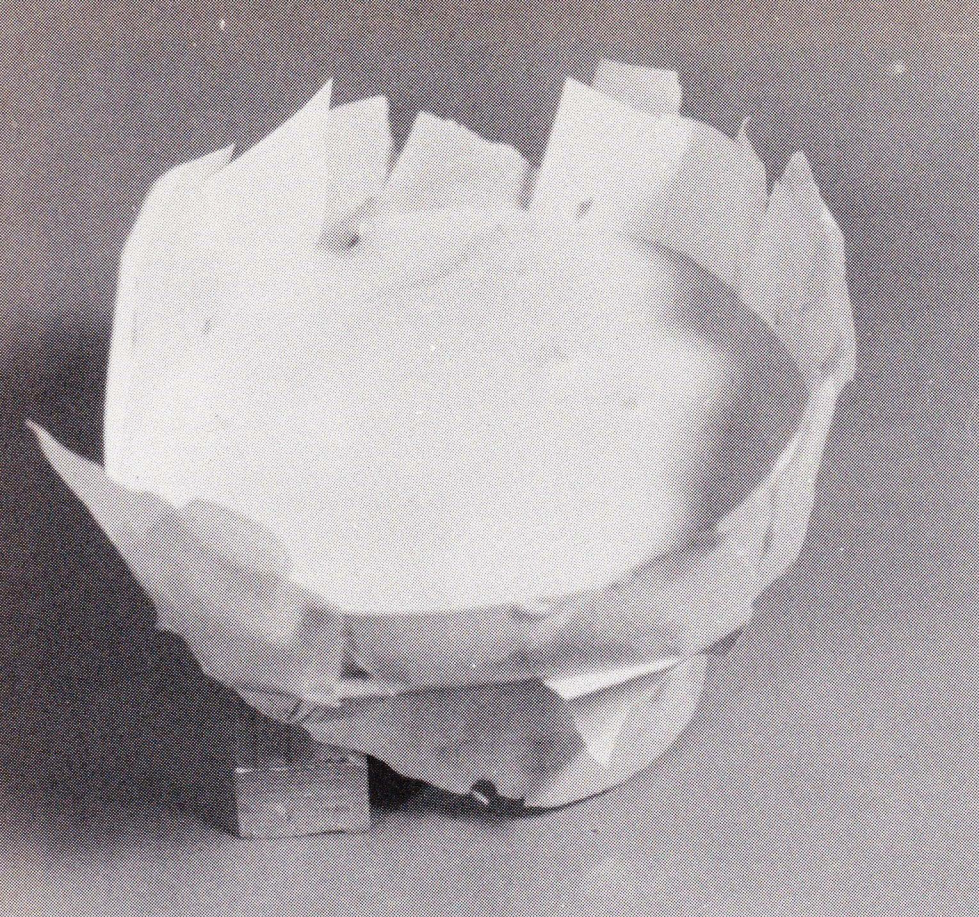
As might be expected, the use of these silicone materials is not without certain minor hazards. Although they don't give off caustic fumes, avoid getting either the base rubber or the catalyst on your skin. (The catalyst irritates skin and eyes.)

Straight out of the can, what is silicone RTV rubber physically like? Most people have had experience with common hard-

The carved chair is taped into a cardboard cylinder, prior to the rubber being poured over it to form the first mold half.







More rubber is poured on, until the chair is completely covered. This second mold half is then allowed to cure. Any air bubbles in Dow Corning #3110 RTV rubber easily float to the surface and disappear.

ware store type silicone adhesive/sealer, the transparent material in a small tube with the consistency of very thick toothpaste. Silicone moldmaking rubber, on the other hand, is a pourable liquid similar in consistency to corn syrup and slightly thicker than liquid latex. It can readily fill in contours and undercuts of an object it is brushed or poured on. And Dow Corning #3110 has the remarkable ability to allow air bubbles in the stirred rubber to easily float to the surface and disappear, a godsend for making surface-perfect molds.

Although #3110 is the "thinnest" (least viscous) of the six available Dow Corning moldmaking rubbers, if an even more pourable rubber is needed, you can add "Dow Corning 200 silicone fluid thinner."

There are several terms associated with the curing times of catalyzed RTV rubbers. (Although the following apply specifically to Dow Corning #3110, you can probably use them as a guide to other types.) Once the catalyst is added to the silicone base rubber, a chemical reaction begins that doesn't stop until the rubber has turned solid. But in that span of time are three more or less distinct time periods.

The first, "working time," would seem to be self-evident, but needs a little explaining. Once catalyzed, the rubber slowly and continuously gets thicker, until a point is reached where it gets sluggish and you can just barely smooth it around on your object. Technically, this "working

time" is described as the time it takes for the freshly-mixed rubber to become two to three times as thick as when it started out. "Pot life," on the other hand, is the time that elapses before the rubber ceases being a liquid at all and turns into its gelled form. Practically speaking, working time and pot life tend to overlap somewhat. Depending on the room temperature, the rubber can still be slushed around long after its supposed working time has ended.

At some point the rubber finally turns hard enough to be considered a mold; that's the total "curing time."

There are four different catalysts for use with #3110 rubber, but only two are useful for moldmaking, #1 and #4. (The others create a rubber for electronic encapsulation.) These two catalysts produce wildly different curing times.

Type #1 is the general purpose catalyst, a cream that looks almost like the silicone base rubber itself, only thicker. This is mixed in a ratio of 1 to 10 with the base rubber. (One part catalyst to ten parts rubber.) The relative amounts are not at all critical, though; if you want a somewhat faster cure time, use more catalyst (although any more than a 1:4 ratio will cause some changes in the cured rubber; nothing serious, but it's not recommended.) Used in the normal ratio, this catalyst produces a leisurely curing time measured in many hours.

Catalyst #4, on the other hand, is a super concentrated liquid, and its purpose

is to quick-cure the silicone rubber—*very quickly!*

These curing times may take some getting used to. If you want a very strong, tough RTV mold, expect to wait from 18 to 24 hours for the rubber to fully cure using catalyst #1. (It has a working time of three hours or more.) Since a coat of brushed-on latex can usually be dried in an oven in a matter of fifteen minutes or so, it would seem to be quicker to use than RTV catalyzed this way. But given the fact that very few molds are made as thin as several coats of brushed-on latex, RTV in thicker sections is in fact the faster curing of the two materials (remember, it cures all at one time.) And by using the "quick cure" catalyst #4, the curing or "vulcanizing" of #3110 RTV rubber can be dramatically speeded up, without a loss of its rubbery properties. At room temperature, the working time is about five minutes, and it will fully cure in 30 minutes!

Such speed doesn't come without a compromise, though: catalyst #4 needs to be mixed in a 1 to 100 ratio with the base rubber! This can be difficult to measure precisely. But again, it doesn't *have* to be precise. Using a paper 3-ounce Dixie Cup as a measuring cup, I've found that 15 drops of catalyst #4 per cup of base rubber produces a good cured RTV mold, with ample time to brush or pour the rubber over the pattern before it sets up.

Both catalysts seem to produce an identical cured rubber: tough and strong, yet bendable and somewhat pliable. In large sections it's practically indestructible!

Adding the catalyst to an RTV rubber serves two functions: to make the rubber solidify, and to chemically *vulcanize* it. Vulcanization is the process of treating rubber (usually with heat) so that it will return to its original shape after being deformed or stretched. A latex rubber band is a good example of vulcanized rubber.

By heating the latex in an oven for a period of time—by vulcanizing it—the latex becomes more elastic. (And despite what some liquid latex containers will tell you, it should be subjected to low oven-type heat in order to properly vulcanize.) The catalyst added to RTV rubber does the same thing, but without the addition of any external heat.

East coast effects artists John Dods and Tom Lauten report that chemically, vulcanized types of rubbers like #3110 generally do not have quite the "stretchability" of heat-vulcanized latex. I've also found this to be true. When subjected to the same amount of force, silicone RTV in *thin* sections will rip more easily. Although there are extra "plasticizers" or "flexibilizers" that can be added to some RTV rubbers like Skin-Flex and Smooth-On to make them much more elastic, silicone RTV rubber in thicker sections is plenty strong and rubbery for most moldmaking



applications.

A silicone RTV mold will by itself readily peel off of a smooth pattern or casting, but any kind of convoluted shape demolds better with a mold release.

Mold releases are used at two different times: when first molding your pattern (that is, when applying the liquid RTV rubber onto your original object to create a negative impression or mold); and during the final casting stage (when you use your cured RTV rubber mold to cast copies of the original, from polyester resin or whatever.)

Although I really didn't need to, when making the mold of my original chair I used Lemon Pledge spray wax furniture polish successfully as a mold release. It must first be polished out on the pattern, though, which limits its use to smooth, simple shapes like my chair. For more involved shapes, try brushing on a coat of dishwashing liquid thinned with alcohol.

For turning out polyester resin/ fiberglass castings from a silicone mold, use PVA mold release. Although silicone rubber is inherently slippery, PVA (polyvinyl alcohol), a water-soluble green liquid with an alcohol base, "helps things along," particularly if the mold has a lot of undercuts to reproduce. PVA actually deposits a very thin layer of vinyl on the mold as it dries. It is brushed or sprayed on. Several coats are better than one, although subsequent coats have a tendency to dissolve the dried PVA that's already there. When the casting resin has cured, you may have to peel this vinyl layer off; it can also be dissolved with alcohol. It can be purchased from most large plastics distributors. It can also be used on the original pattern before it's molded, but not over bare wood as it will raise the grain.

RTV molds are sort of like computers: garbage in equals garbage out. RTV rubber is the moldmaking material to use when the castings must have virtual 100%

fidelity to the original. It picks up unbelievably fine detail—even the paper fibre patterns on the inside of a Dixie Cup! For this reason, it is essential that you finish the surface of your original pattern to be *exactly* the way you want it, as fine as possible. Don't expect an RTV mold to somehow "miss" any surface imperfections on your pattern—it will not!

I used 200-grit sandpaper for the initial smoothing of my puttied balsawood chair, following up with 400 and 600 grit for the final finish. If you want your castings to be glassy smooth as I did, you'll have to actually polish the pattern's surface, first with 600-grit sandpaper, then with spray wax. (This also acts as your mold release.)

There are some inconsistencies in the technical bulletin for Dow Corning #3110 silicone rubber. In one of its charts, the bulletin leads you to believe that #3110 can be used to make a mold of a plastilene clay pattern such as a sculpture; elsewhere it admonishes you *not* to use it with clay. The fact of the matter is, #3110 *cannot* be used for moldmaking with plastilene clay or any material containing sulphur—without somehow *sealing* the clay first. The silicone rubber that lies in direct contact with the clay remains wet and *will not* cure—and that's the one place it must cure, to pick up the all-important detail of the sculpture. (Smooth-On also shares this trait.)

There are several sealers that can be used on the clay: liquid Bald Cap material; artists' spray fixative; shellac, either sprayed or brushed on; even "acrylic clear" spray enamel (I haven't personally tried these, though). The point is to put a non-porous barrier between clay and rubber.

I wouldn't recommend using PVA mold release, since the alcohol in it softens plastilene clay and mixes with it; some of the clay's chemicals could migrate into the PVA layer and you'd have the same

problem all over again.

Tom Lauten reports that "Adrub" brand RTV rubber from Adhesive Products Corp. (1660 Boone Avenue, Bronx, NY 10460) *can* be used for making a flexible RTV mold of a plastilene clay sculpture. Although Adrub has most of the properties of Dow Corning #3110 and is more flexible and tear-resistant, it is not a silicone rubber, but is styrene-based and quite toxic. According to Tom, it is an "isocyanate terminated pre-polymer" containing toluene. But it is less expensive than silicone RTV rubber—a one pound pint can with catalyst sells for \$9.25, about half the price.

Finding the right rubber for my mold was the easy first step; producing the mold itself was a bit more work.

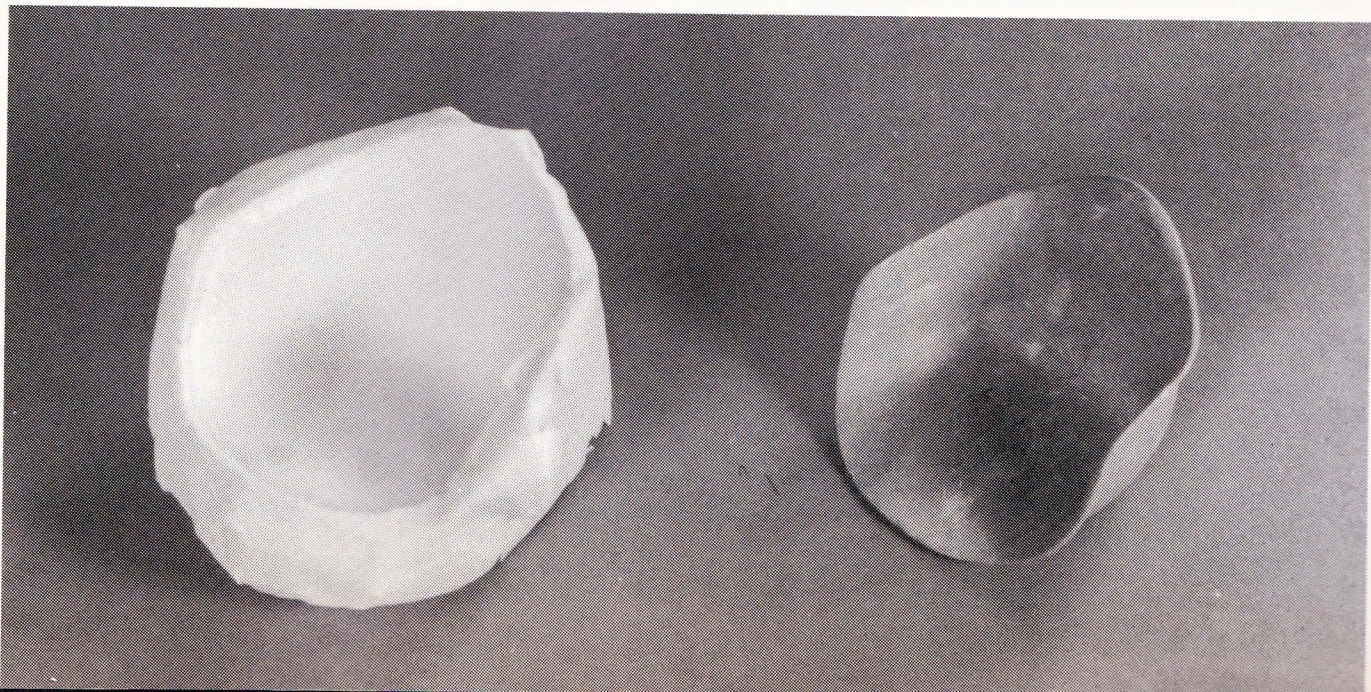
To make my two-piece mold, I first made a circular tube form from thin cardboard, open at the top. This would be my mold "tray." I had decided to make the dividing line of the mold along the continuous edge of the chair, so I applied small pieces of masking tape to the chair to create a dividing wall. I couldn't just put the chair in the tray and pour rubber over it; the convoluted shape of the chair wouldn't allow this.

I then placed the tape chair down into the cardboard tube, affixing it to the inside with more masking tape. At this point the bottom "half" of the chair was sealed off and protected in the bottom of the tube.

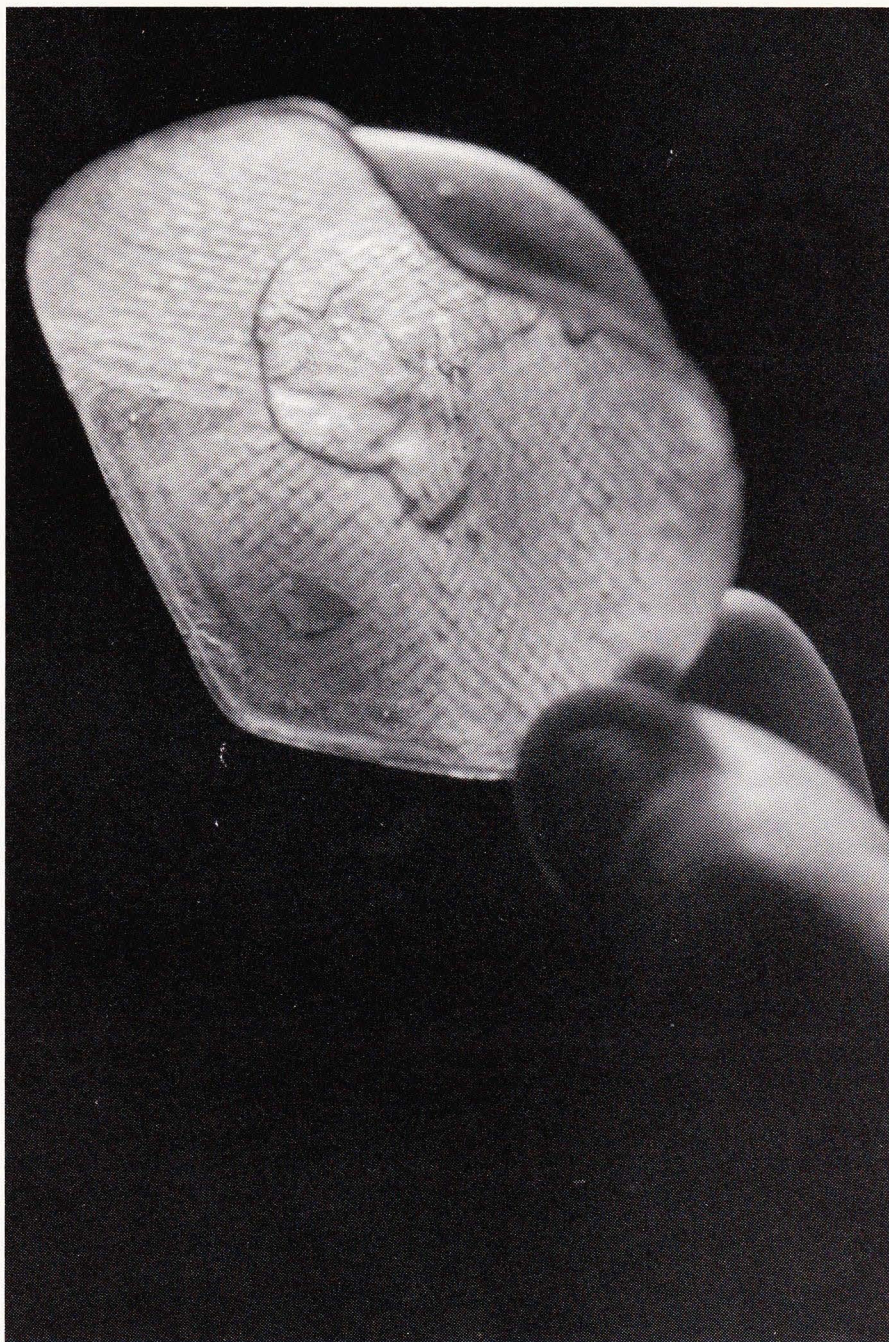
I then mixed up a batch of rubber and catalyst and poured it into the open cardboard tube, until the exposed half of the chair was completely covered. Once cured, this mold half was stripped of its cardboard and masking tape, leaving a stubby cylinder of rubber with the chair half-embedded in one end of it.

Where it is open to the air, the first half of a silicone rubber mold cures to a glass-like, polished finish. It would seem that the second half of a mold, poured right

The first half of the RTV rubber mold, with its cardboard cylinder removed, is shown next to the original chair pattern. (Although done for this photo, removing the pattern before the full mold is complete is not recommended, as it might be difficult to reinsert for making the second mold half.)







The final Fibreglas casting of the chair is actually hollow, cast as a one-piece object from the two-piece mold. Even so, it is quite strong, being reinforced with glass cloth.

over this glassy silicone surface, couldn't possibly stick to it—after all, we're talking about slippery silicones here! But believe me, before pouring the second half, a mold separator is *mandatory* for spreading on the first half of the already-cured rubber. Otherwise the two cured halves *will* stick together. Surprisingly, the Dow Corning tech bulletins make very little mention of this need.

Because of the way *my* mold was made, masking tape had been in contact with what should have been the open face of the first mold half. Instead of it being glassy smooth, the opened mold surface had embossed on it an amazingly realistic reproduction of masking tape—and was anything but smooth.

I had then used my Dremel tool to grind

holes *into* the surface of the rubber, to make "keys" so the second half of the mold would align to it repeatedly. These holes, along with the masking tape impressions, were "abraded areas"—and silicone RTV rubber poured over itself will stick *with a vengeance* when abraded!

The technical bulletin for #3110 mentions that a 20-to-1 solution of alcohol to an industrial detergent will work as a mold release or separator on the rubber; I tried an experiment using alcohol with dishwashing liquid and it did not work *at all*. The test mold halves were permanently bonded together in places.

For my actual chair mold, I opted for a liberal coating of Vaseline right out of the jar. I smeared it onto the face of the first cured mold half. I then built another

masking tape tube, mixed up some more rubber, and poured it over the still-exposed half of the chair, covering it up completely. This mold half, once cured, pulled away from both chair and rubber reasonably easily. And much to my surprise, my flimsy balsawood chair carving survived the demolding intact!

All silicones are not created equal: Silicone-based "tub and tile sealant"—the white stuff in the long tubes—does *not* work as a molding material. It has no elasticity to speak of, and it sticks to even oil-coated objects!

John Dods reports the successful use of ordinary hardware store type silicone sealer as a moldmaking rubber. The silicone was used to make a mold of a ping-pong ball for subsequent casting of solid eyeball shapes.

Dods first coated the ping-pong ball with a layer of dishwashing liquid as a mold separator before smearing the silicone sealer over the ball. Although useful in certain circumstances, silicone sealer is not a two-part system and doesn't chemically cure like silicone moldmaking rubber. Since it air-dries and "skins" first the way latex does, this type of rubber takes quite a while to cure depending on its thickness.

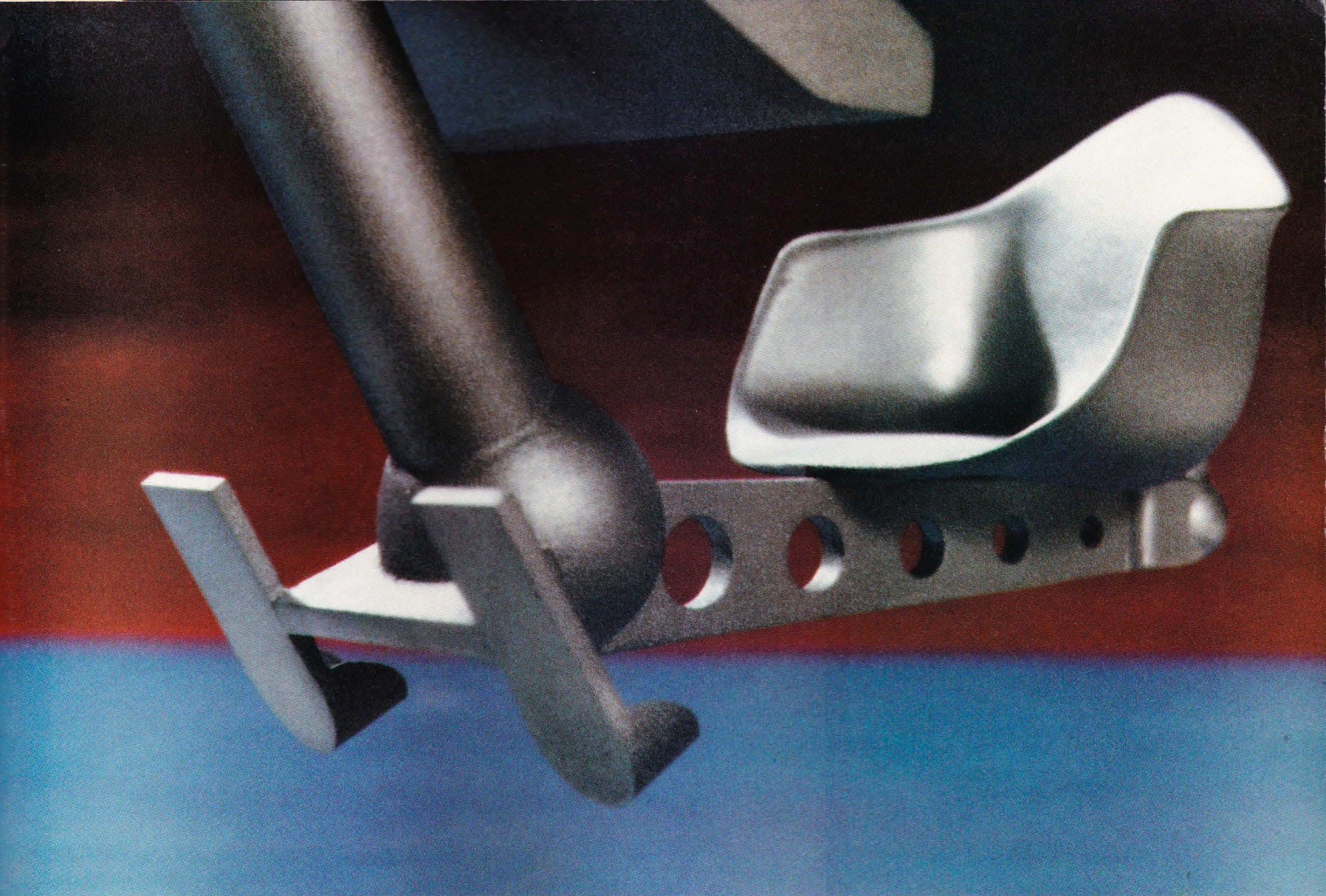
Dow Corning is not the only manufacturer of two-part silicone RTV rubber; General Electric also has its own brand. Be aware that other manufacturers' RTV products may or may not be silicone-based; ask.

Look for the phone number of Dow Corning in your Yellow Pages phone book, call and ask them where their distributors in your state are. (Note that the rubber you're looking for may also be called a "two-part silicone RTV elastomer.") Or you might try ordering by mail from the McKeown Co. In Manhattan, Dow Corning #3110 is available from Industrial Plastics Supply House at 309 Canal St.

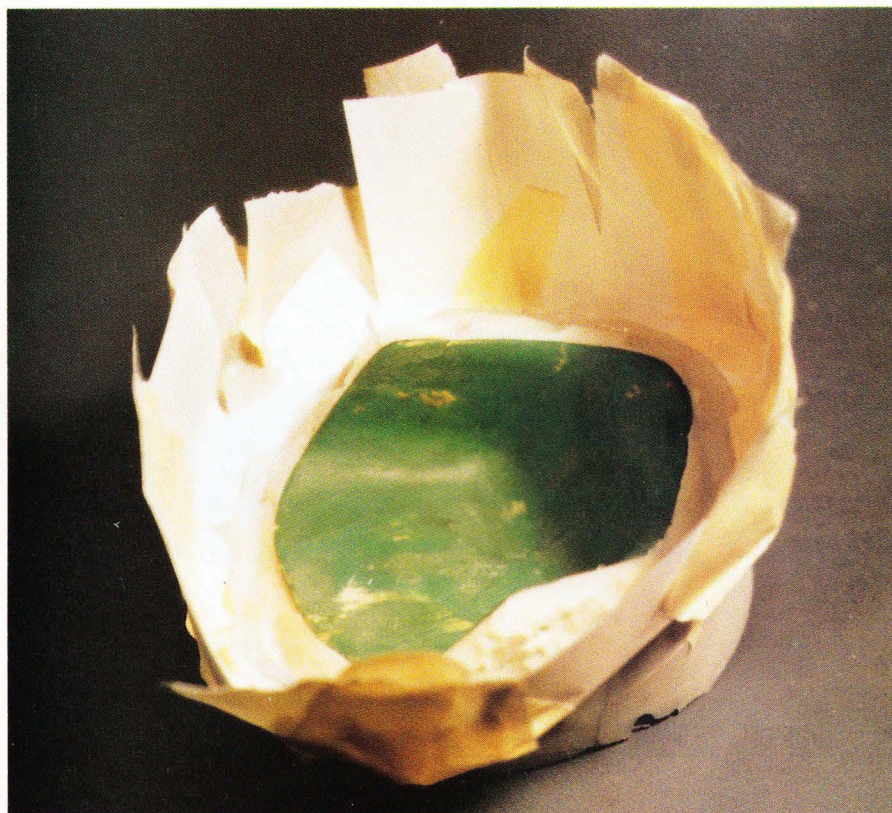
A lot of these RTV rubbers unfortunately don't have a completely infallible track record as far as performance is concerned, especially under trying circumstances—a fact tacitly acknowledged in the Dow Corning tech bulletins themselves. My advice when making a mold with any type of RTV rubber is to do an experiment first, with a small batch of the rubber and some materials mimicking those of your original object. It's just a fact of moviemaking life that the effects technician using these materials doesn't usually work in anything approaching a controlled laboratory environment, especially when on location for a film!

Moldmaking is certainly not the most glamorous aspect of creating scratchbuilt models. But if you grit your teeth like I do when faced with making a lot of identical parts, using a mold can certainly save you some frustration! Making molds is both science and art, and with modern RTV rubber materials, you can produce molds





The sanded and finished model is finally attached to the rest of the model and painted with an airbrush. An RTV mold can turn out extremely detailed castings, identical to the original pattern in every way.

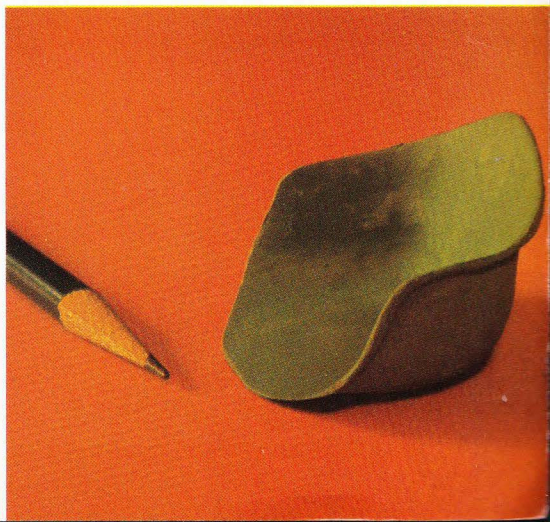


To make the 2nd half of the rubber mold, another cardboard-and-tape "cylinder" is built up around the first cured mold half. The surface of the already-cured rubber is smeared with a liberal coating of Vaseline to keep the mold halves from sticking together.

that will turn out copies with such fine surface detail and fidelity to the original that you'll wonder how you ever got along without them. Go ahead—make life easier for yourself with RTV moldmaking rubber! *CM*

*Next issue Ken Walker will present a detailed account of the building of his complete FORBIDDEN PLANET blaster model (including the casting of his model chair) concentrating on the tools and techniques of pure scratchbuilding with an eye toward professional, museum-quality results.*

The finished wooden chair—also called a "pattern"—has been coated with green modeling putty, both to allow the chair to be sanded very smooth, and to give the balsawood some extra strength.





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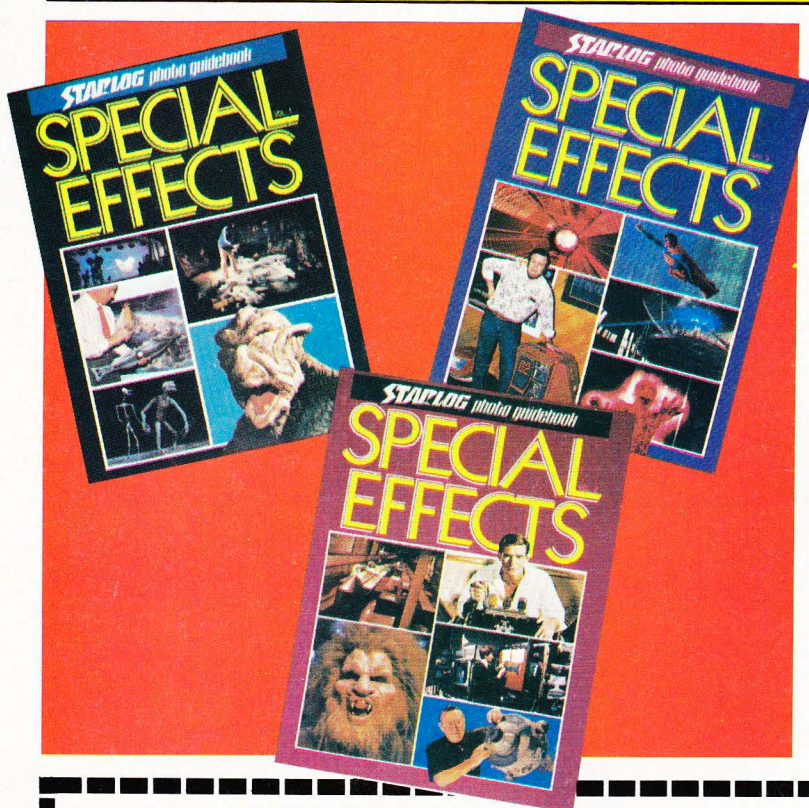
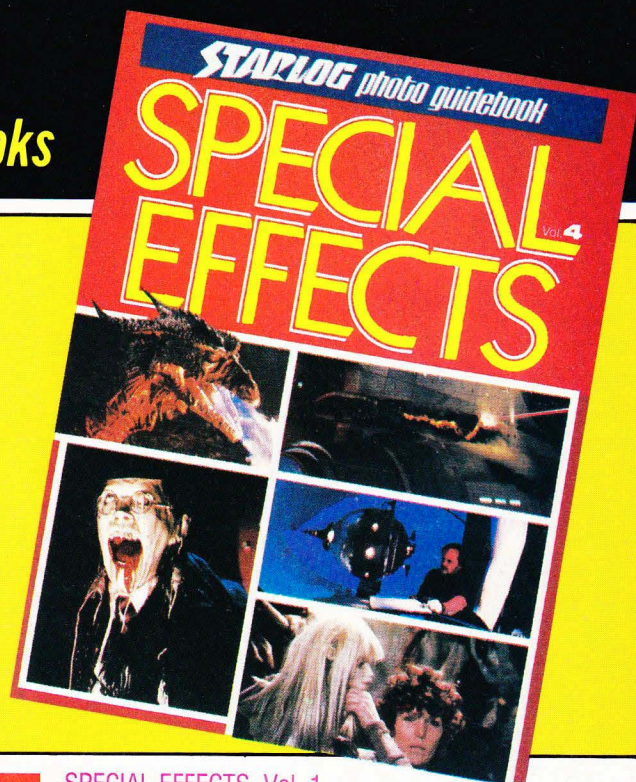
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